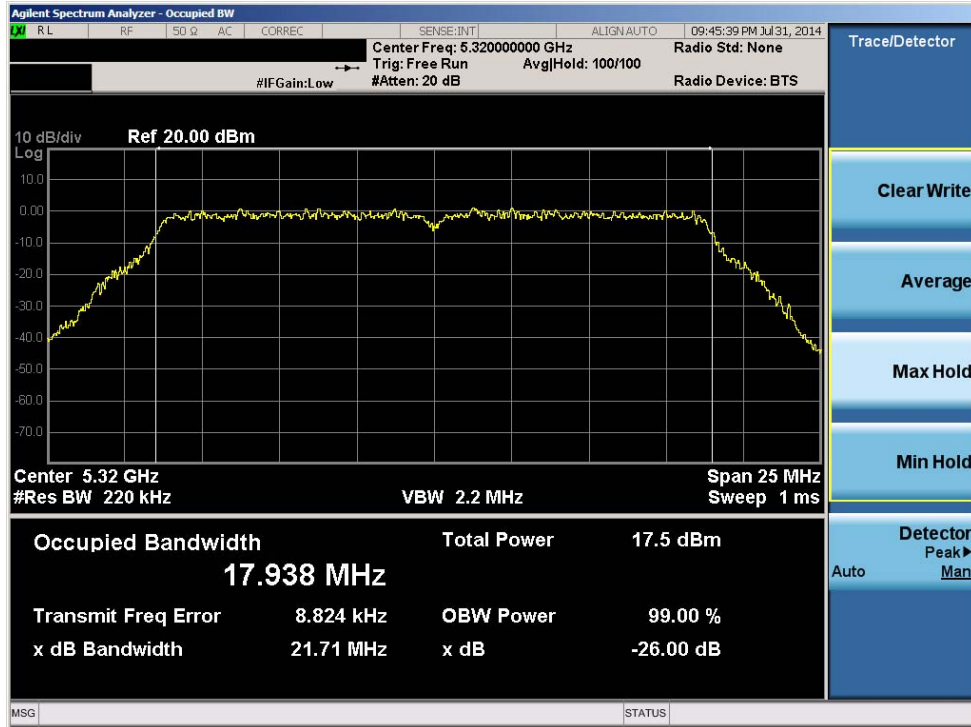
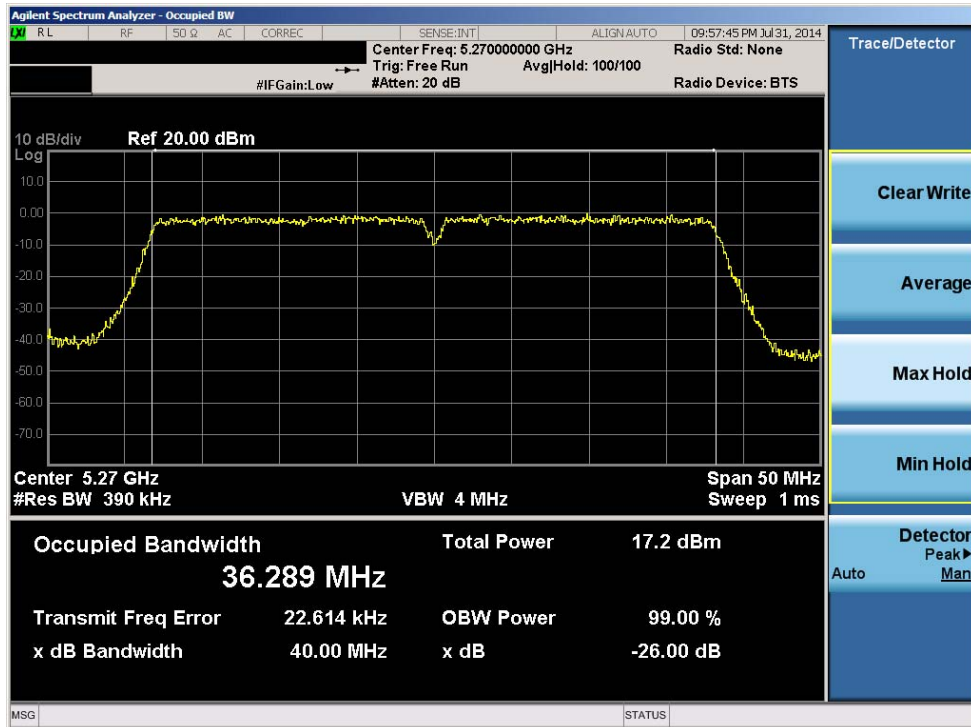


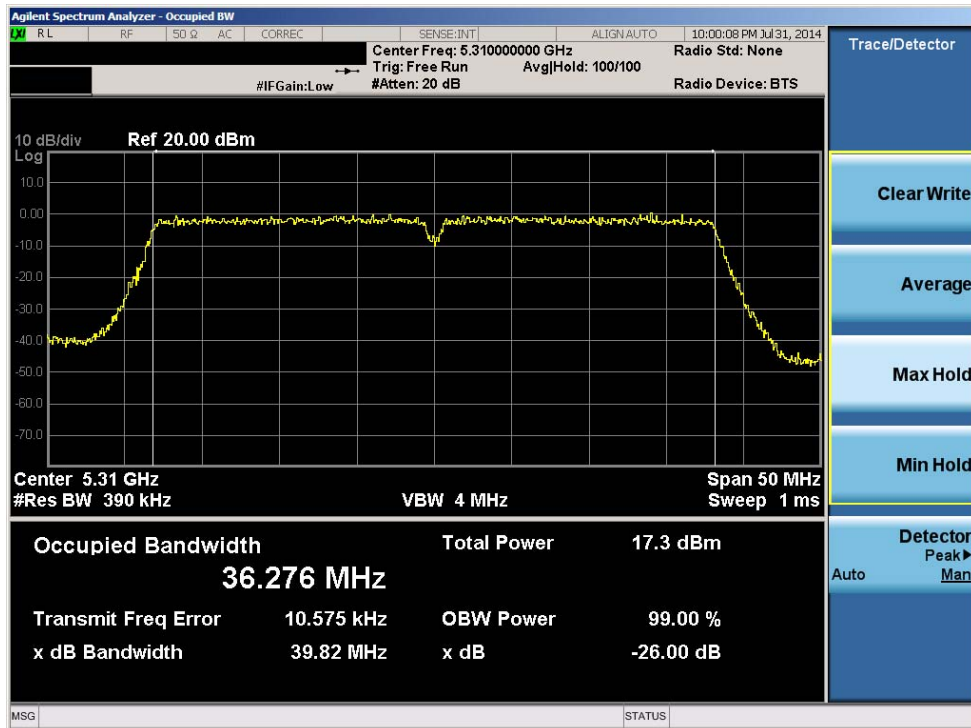


Plot 6-49. 26dB Bandwidth Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 64)

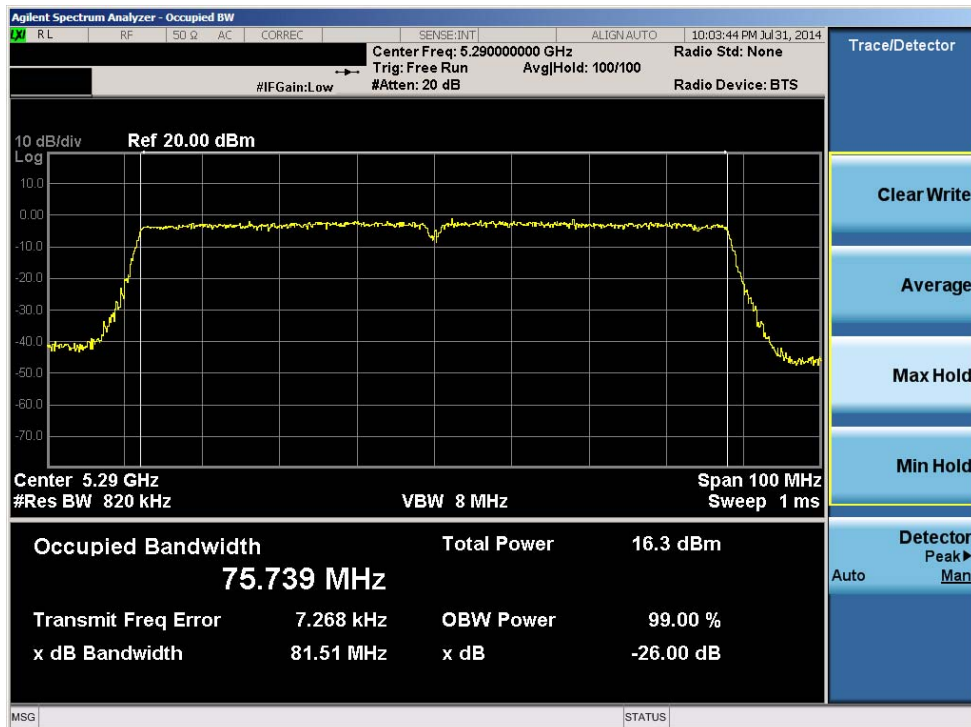


Plot 6-50. 26dB Bandwidth Plot (40MHz BW 802.11n (UNII Band 2A) – Ch. 54)

|                                      |                                               |                                                                        |                |                                 |
|--------------------------------------|-----------------------------------------------|------------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN910R4                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1408051620.A3L | Test Dates:<br>07/29-09/1/2014                | EUT Type:<br>Portable Handset                                          |                | Page 39 of 182                  |

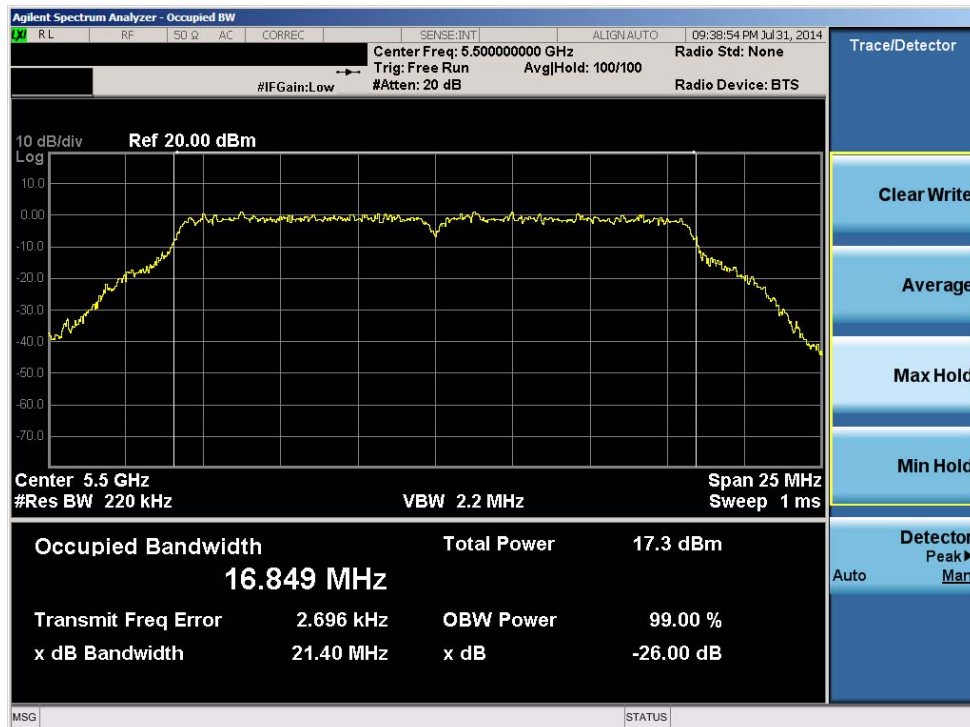


Plot 6-51. 26dB Bandwidth Plot (40MHz BW 802.11n (UNII Band 2A) – Ch. 62)

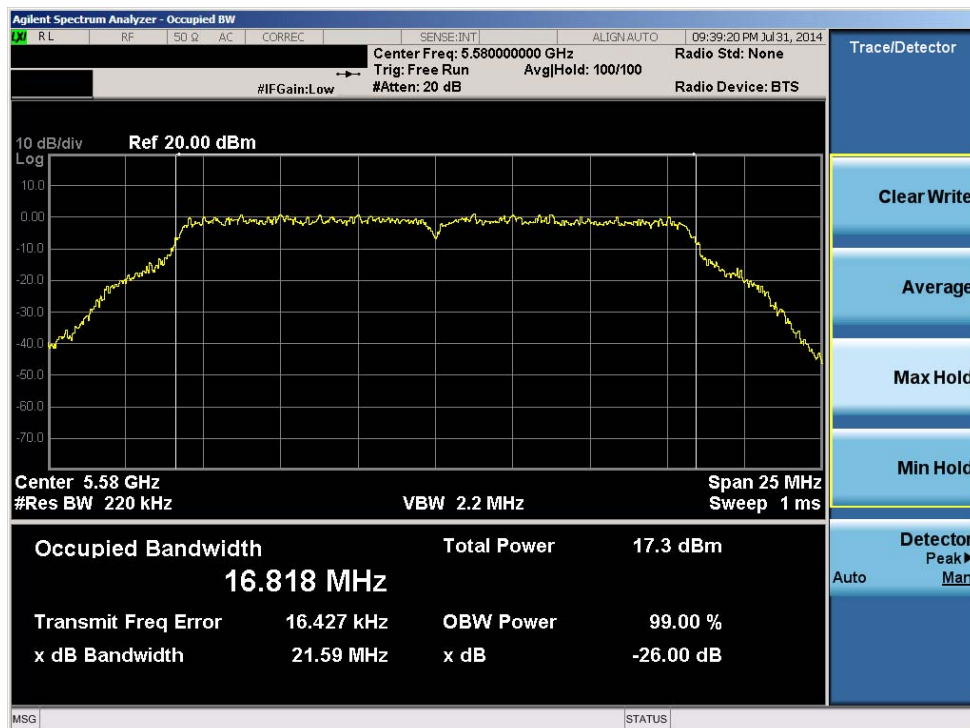


Plot 6-52. 26dB Bandwidth Plot (80MHz BW 802.11ac (UNII Band 2A) – Ch. 58)

|                                      |                                               |                                                                        |                |                                 |
|--------------------------------------|-----------------------------------------------|------------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN910R4                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1408051620.A3L | Test Dates:<br>07/29-09/1/2014                | EUT Type:<br>Portable Handset                                          |                | Page 40 of 182                  |

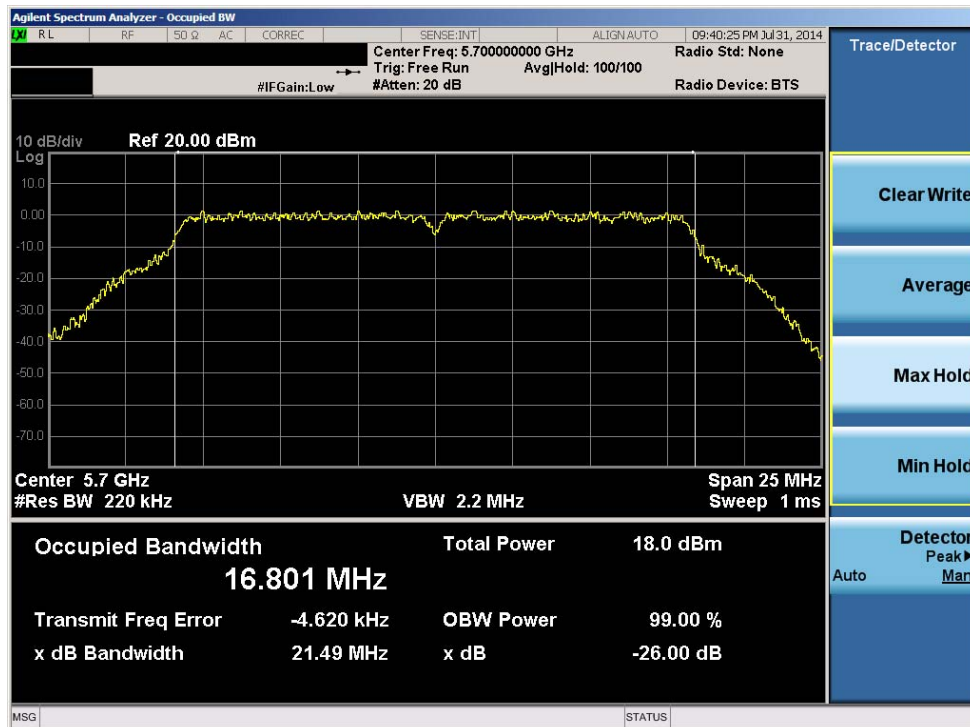


Plot 6-53. 26dB Bandwidth Plot (802.11a (UNII Band 2C) – Ch. 100)

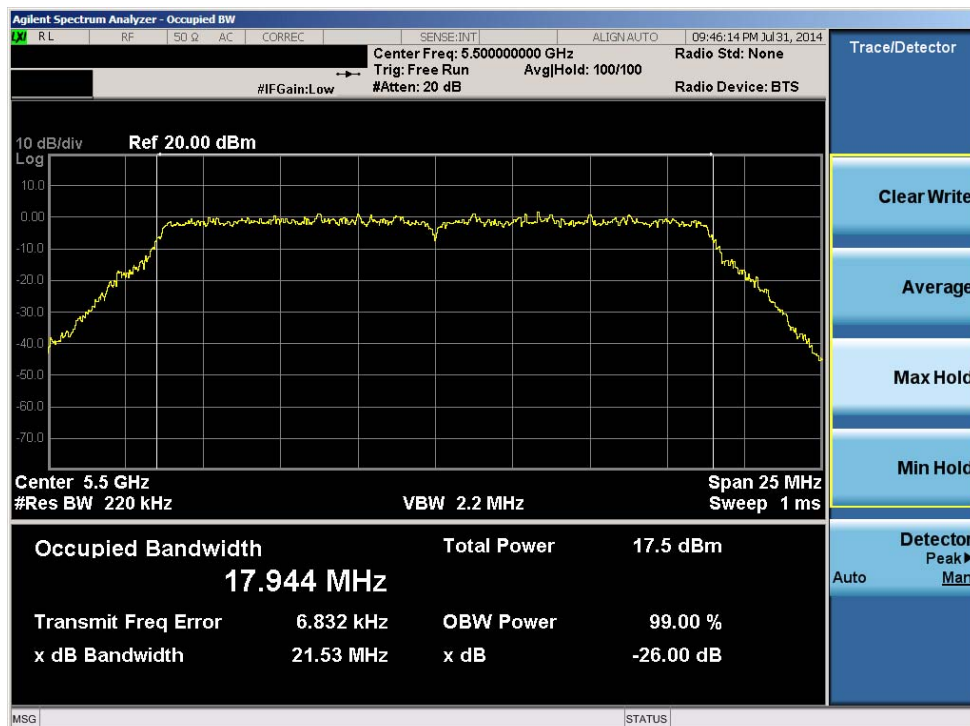


Plot 6-54. 26dB Bandwidth Plot (802.11a (UNII Band 2C) – Ch. 116)

|                                      |                                               |                                                                        |                |                                 |
|--------------------------------------|-----------------------------------------------|------------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN910R4                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1408051620.A3L | Test Dates:<br>07/29-09/1/2014                | EUT Type:<br>Portable Handset                                          |                | Page 41 of 182                  |

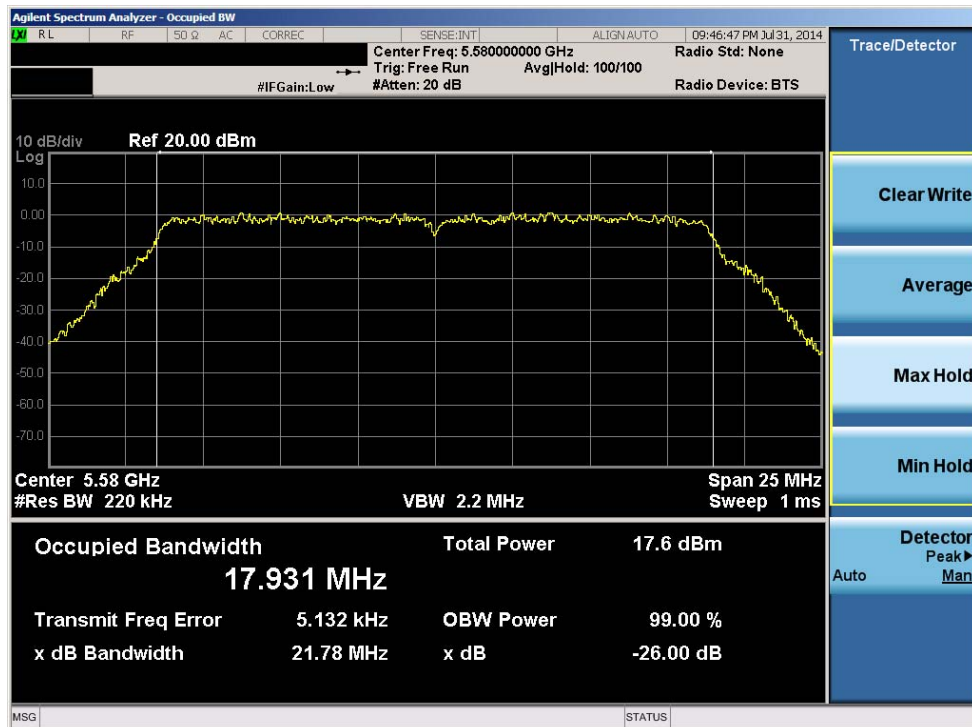


Plot 6-55. 26dB Bandwidth Plot (802.11a (UNII Band 2C) – Ch. 140)

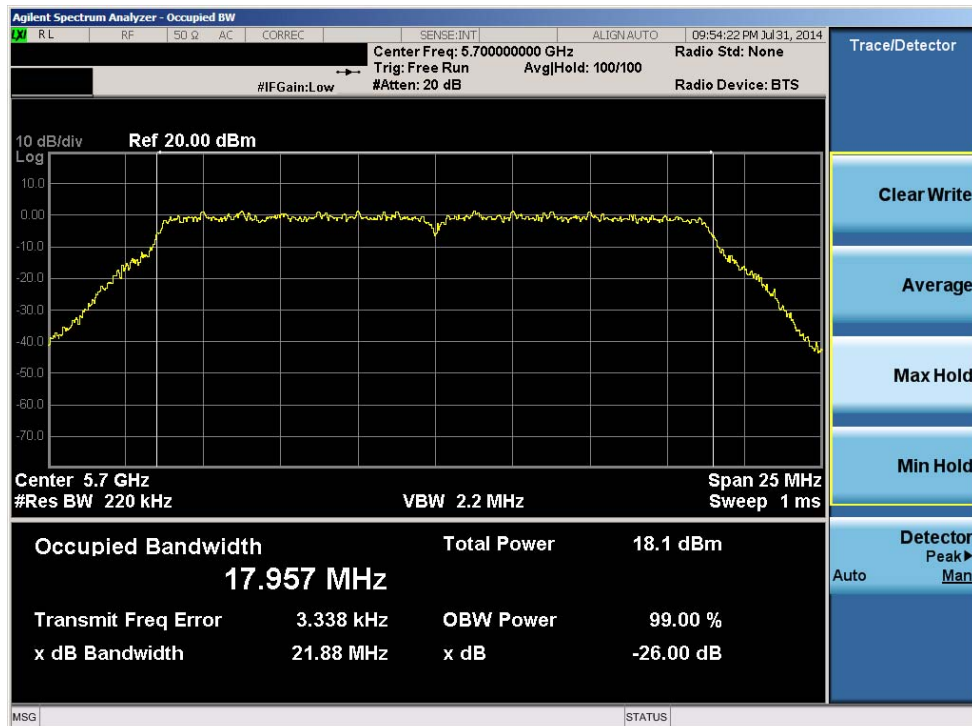


Plot 6-56. 26dB Bandwidth Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 100)

|                                      |                                               |                                                                        |                |                                 |
|--------------------------------------|-----------------------------------------------|------------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN910R4                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1408051620.A3L | Test Dates:<br>07/29-09/1/2014                | EUT Type:<br>Portable Handset                                          |                | Page 42 of 182                  |



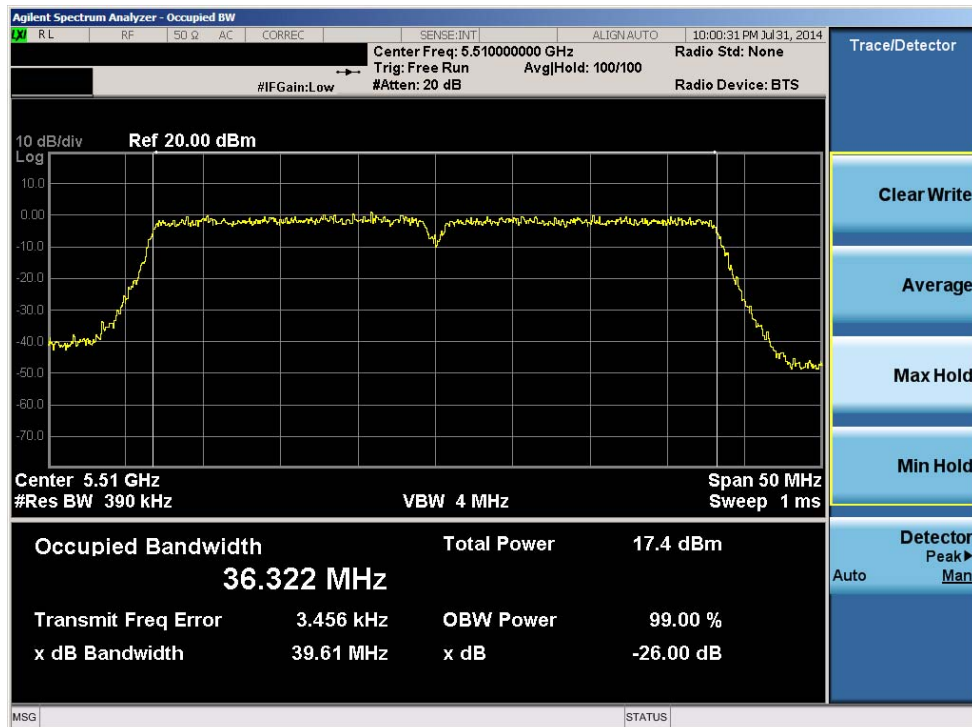
Plot 6-57. 26dB Bandwidth Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 116)



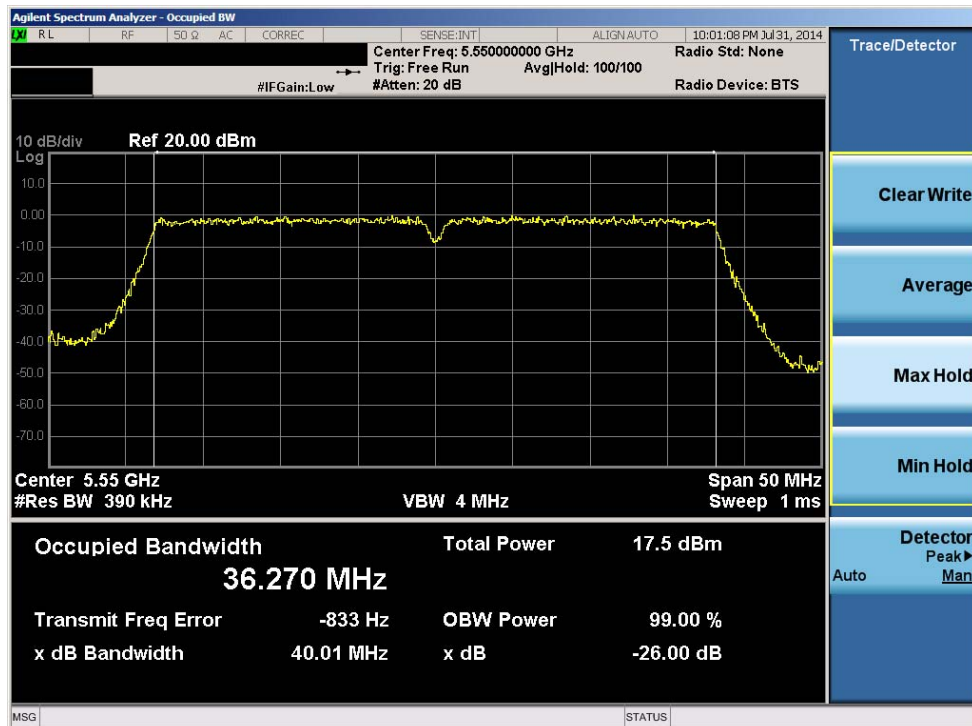
Plot 6-58. 26dB Bandwidth Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 140)

|                                      |                                               |                                                                        |                |                                 |
|--------------------------------------|-----------------------------------------------|------------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN910R4                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1408051620.A3L | Test Dates:<br>07/29-09/1/2014                | EUT Type:<br>Portable Handset                                          |                | Page 43 of 182                  |



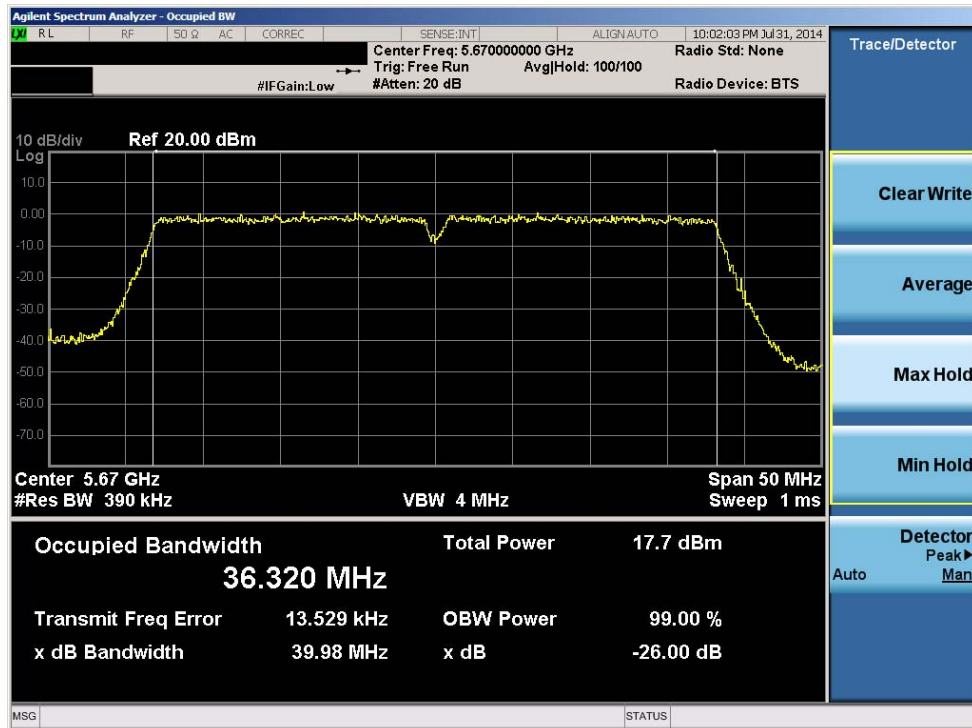


Plot 6-59. 26dB Bandwidth Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 102)

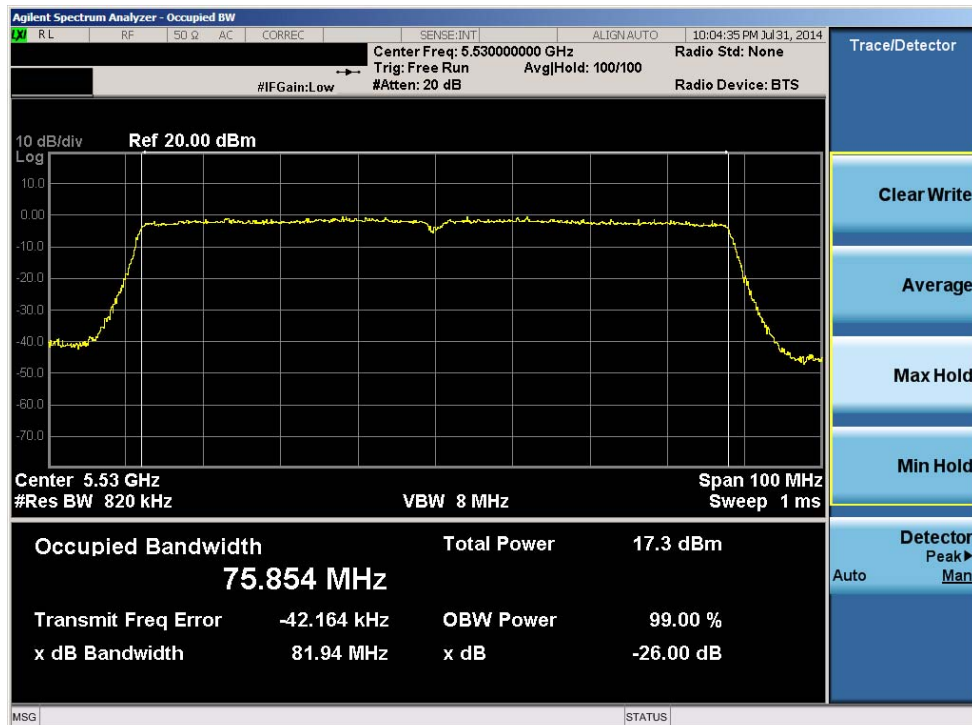


Plot 6-60. 26dB Bandwidth Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 110)

|                                      |                                               |                                                                        |                |                                 |
|--------------------------------------|-----------------------------------------------|------------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN910R4                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1408051620.A3L | Test Dates:<br>07/29-09/1/2014                | EUT Type:<br>Portable Handset                                          |                | Page 44 of 182                  |

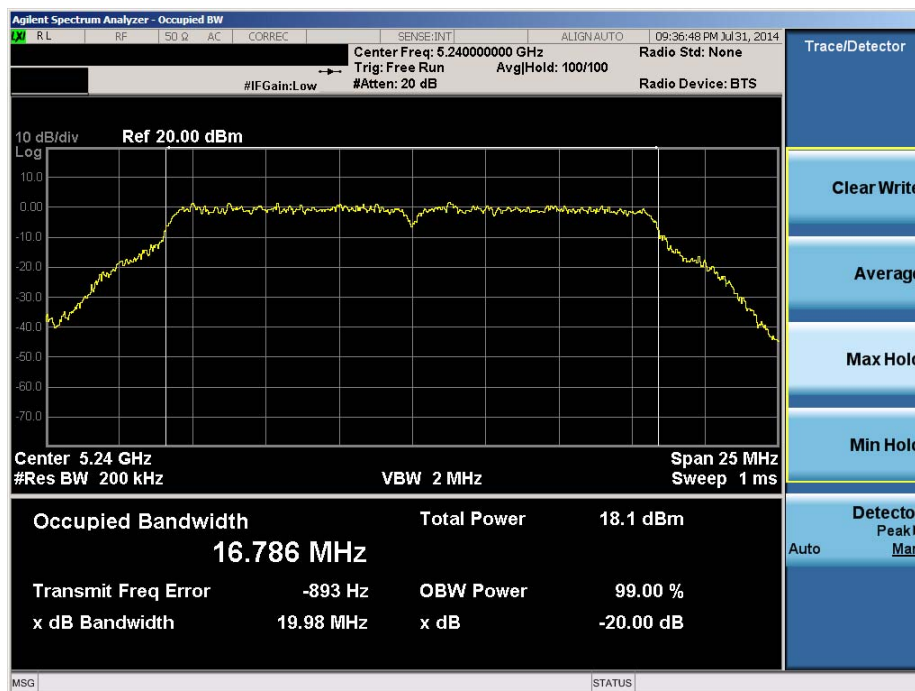


Plot 6-61. 26dB Bandwidth Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 134)



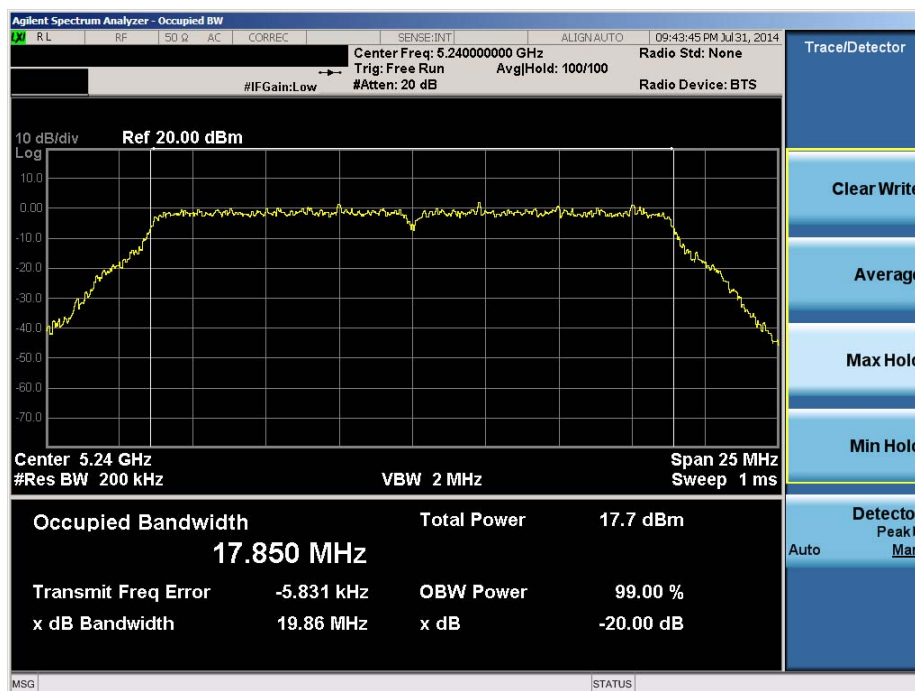
Plot 6-62. 26dB Bandwidth Plot (80MHz BW 802.11ac (UNII Band 2C) – Ch. 106)

|                                      |                                               |                                                                        |                |                                 |
|--------------------------------------|-----------------------------------------------|------------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN910R4                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1408051620.A3L | Test Dates:<br>07/29-09/1/2014                | EUT Type:<br>Portable Handset                                          |                | Page 45 of 182                  |



**Plot 6-63. 20dB Bandwidth Plot (20MHz BW 802.11a (UNII Band 1) – Ch. 48)**

**Note:** The 20dB bandwidth plot of the UNII Band 1 high channel was found to be within 20MHz and is, therefore, operating solely within the UNII Band 1 frequencies.

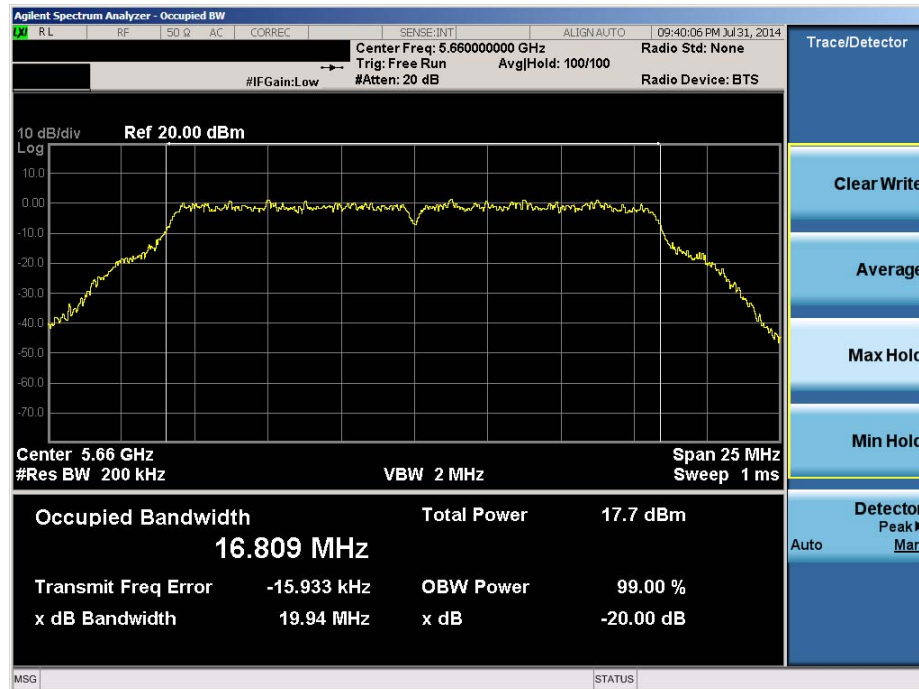


**Plot 6-64. 20dB Bandwidth Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 48)**

**Note:** The 20dB bandwidth plot of the UNII Band 1 high channel was found to be within 20MHz and is, therefore, operating solely within the UNII Band 1 frequencies.

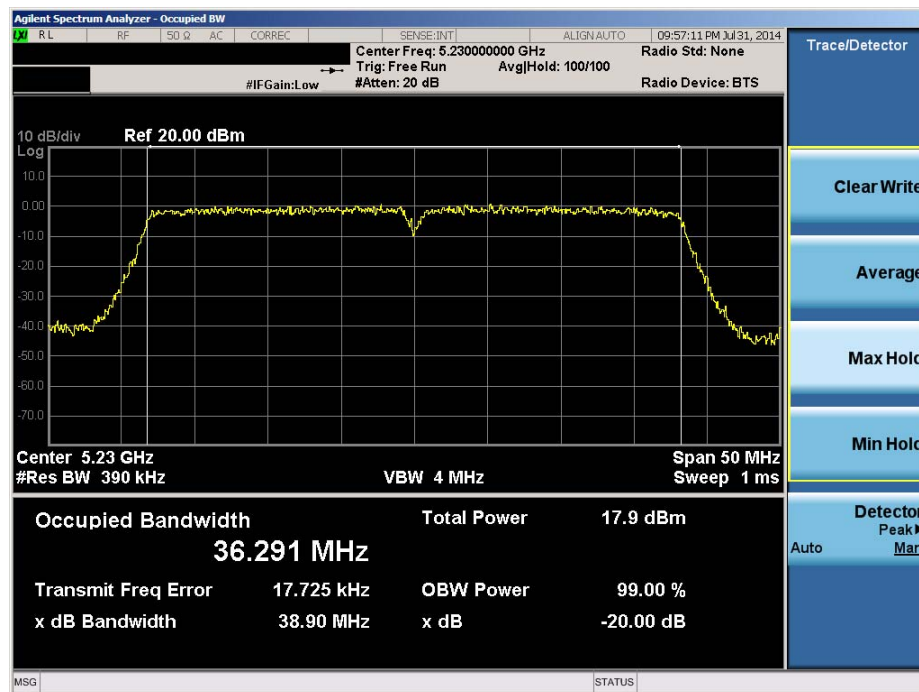
|                                      |                                               |                                                                        |                |                                 |
|--------------------------------------|-----------------------------------------------|------------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN910R4                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1408051620.A3L | Test Dates:<br>07/29-09/1/2014                | EUT Type:<br>Portable Handset                                          |                | Page 46 of 182                  |





**Plot 6-65. 20dB Bandwidth Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 132)**

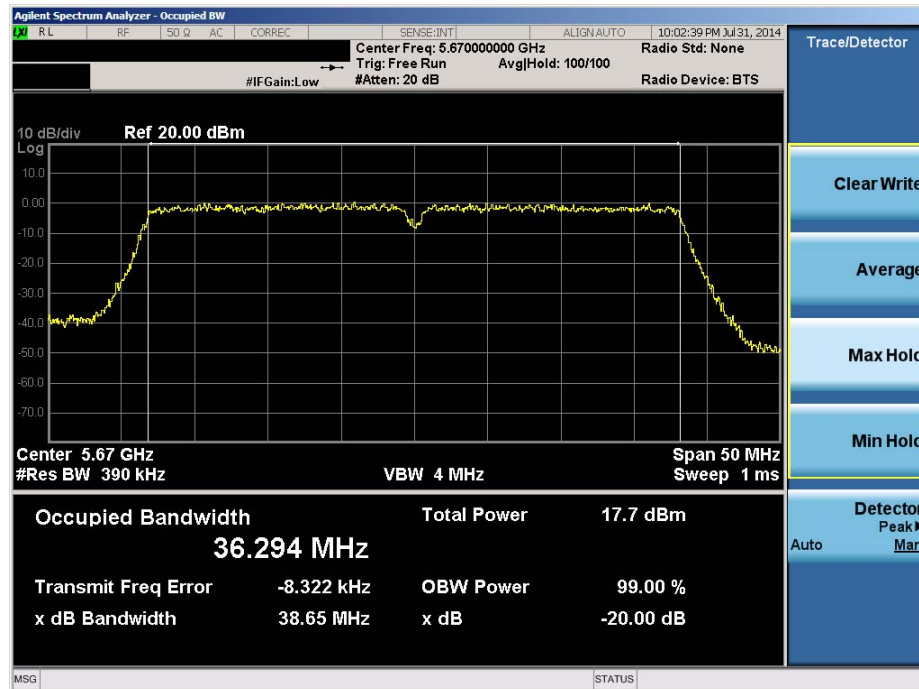
**Note:** The 20dB bandwidth plot of the UNII Band 2C channel 132 was found to be within 20MHz and is, therefore, is not found to be operating within the 5600 – 5650MHz TDWR band.



**Plot 6-66. 20dB Bandwidth Plot (40MHz BW 802.11n (UNII Band 1) – Ch. 46)**

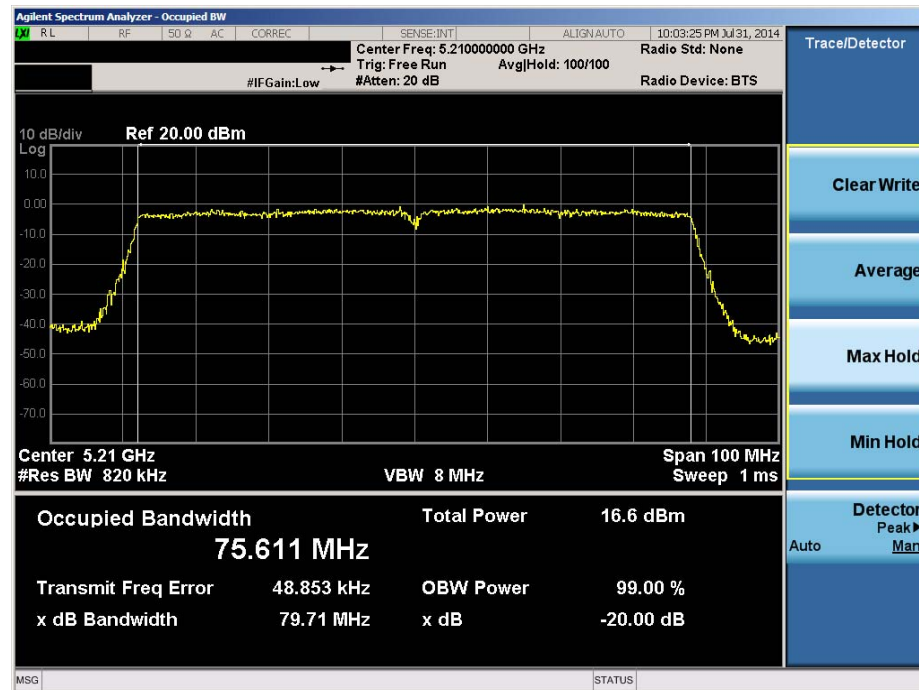
**Note:** The 20dB bandwidth plot of the UNII Band 1 high channel was found to be within 40MHz and is, therefore, operating solely within the UNII Band 1 frequencies.

|                                      |                                               |                                                                        |                |                                 |
|--------------------------------------|-----------------------------------------------|------------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN910R4                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1408051620.A3L | Test Dates:<br>07/29-09/1/2014                | EUT Type:<br>Portable Handset                                          |                | Page 47 of 182                  |



**Plot 6-67. 20dB Bandwidth Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 134)**

**Note:** The 20dB bandwidth plot of the UNII Band 2C high channel was found to be within 40MHz and is, therefore, is not found to be operating within the 5600 – 5650MHz TDWR band.



**Plot 6-68. 20dB Bandwidth Plot (80MHz BW 802.11ac (UNII Band 1) – Ch. 42)**

**Note:** The 20dB bandwidth plot of the UNII Band 1 high channel was found to be within 80MHz and is, therefore, operating solely within the UNII Band 1 frequencies.

|                                      |                                               |                                                                        |                |                                 |
|--------------------------------------|-----------------------------------------------|------------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN910R4                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1408051620.A3L | Test Dates:<br>07/29-09/1/2014                | EUT Type:<br>Portable Handset                                          |                | Page 48 of 182                  |

### 6.3 UNII Output Power Measurement – 802.11a/n/ac §15.407 (a.1)

#### Test Overview and Limits

A transmitter antenna terminal of the EUT is connected to the input of an RF pulse power sensor. Measurement is made using a broadband average power meter while the EUT is operating at its maximum duty cycle (>98%), at its maximum power control level, as defined in KDB 789033 v01r04, and at the appropriate frequencies.

*In the 5.15 – 5.25GHz band, the maximum permissible conducted output power is the lesser of 50mW (16.99dBm) and  $4 \text{ dBm} + 10\log_{10}(26\text{dB BW}) = 4 \text{ dBm} + 10\log_{10}(21.36) = 17.30\text{dBm}$ .*

*In the 5.25 – 5.35GHz band, the maximum permissible conducted output power is the lesser of 250mW (23.98dBm) and  $11 \text{ dBm} + 10\log_{10}(26\text{dB BW}) = 11 \text{ dBm} + 10\log_{10}(21.43) = 24.31\text{dBm}$ .*

*In the 5.47 – 5.725GHz band, the maximum permissible conducted output power is the lesser of 250mW (23.98dBm) and  $11 \text{ dBm} + 10\log_{10}(26\text{dB BW}) = 11 \text{ dBm} + 10\log_{10}(21.39) = 24.30\text{dBm}$ .*

#### Test Procedure Used

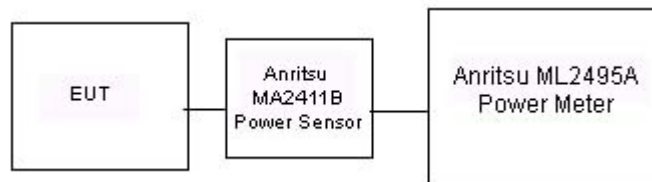
KDB 789033 v01r04 – Section E)3)b) Method PM-G  
KDB 662911 v02r01 – Section E)1) Measure-and-Sum Technique

#### Test Settings

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter. The trace was averaged over 100 traces to obtain the final measured average power.

#### Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



**Figure 6-2. Test Instrument & Measurement Setup**

#### Test Notes

None

|                                      |                                                                                     |                                                                        |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMN910R4                  |  | FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT<br>(CERTIFICATION) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1408051620.A3L | Test Dates:<br>07/29-09/1/2014                                                      | EUT Type:<br>Portable Handset                                          |                                                                                       | Page 49 of 182                  |

## Antenna-1 Conducted Output Power Measurements

| Mode    | Freq [MHz] | Channel | Detector | 802.11a Conducted Power [dBm] |       |       |       |       |       |       |       |
|---------|------------|---------|----------|-------------------------------|-------|-------|-------|-------|-------|-------|-------|
|         |            |         |          | Data Rate [Mbps]              |       |       |       |       |       |       |       |
|         |            |         |          | 6                             | 9     | 12    | 18    | 24    | 36    | 48    | 54    |
| 802.11a | 5180       | 36      | AVG      | 11.50                         | 11.75 | 11.63 | 11.61 | 11.70 | 11.67 | 11.65 | 11.82 |
| 802.11a | 5200       | 40      | AVG      | 11.50                         | 11.67 | 11.60 | 11.53 | 11.69 | 11.67 | 11.63 | 11.80 |
| 802.11a | 5220       | 44      | AVG      | 11.51                         | 11.72 | 11.52 | 11.52 | 11.76 | 11.75 | 11.64 | 11.77 |
| 802.11a | 5240       | 48      | AVG      | 11.59                         | 11.69 | 11.58 | 11.76 | 11.75 | 11.68 | 11.75 | 11.80 |
| 802.11a | 5260       | 52      | AVG      | 11.71                         | 11.92 | 11.81 | 11.83 | 11.92 | 12.03 | 11.84 | 12.05 |
| 802.11a | 5280       | 56      | AVG      | 11.87                         | 11.86 | 11.85 | 11.84 | 11.97 | 12.07 | 12.03 | 12.13 |
| 802.11a | 5300       | 60      | AVG      | 11.91                         | 11.88 | 11.80 | 11.86 | 11.98 | 11.97 | 11.96 | 12.11 |
| 802.11a | 5320       | 64      | AVG      | 11.94                         | 12.03 | 11.87 | 11.76 | 12.07 | 12.00 | 12.02 | 12.15 |
| 802.11a | 5500       | 100     | AVG      | 11.86                         | 11.91 | 11.85 | 11.88 | 12.03 | 12.02 | 12.10 | 12.10 |
| 802.11a | 5520       | 104     | AVG      | 11.92                         | 11.96 | 11.90 | 11.92 | 12.14 | 12.02 | 12.11 | 12.07 |
| 802.11a | 5540       | 108     | AVG      | 11.89                         | 12.11 | 11.99 | 11.88 | 12.10 | 12.03 | 12.17 | 12.14 |
| 802.11a | 5560       | 112     | AVG      | 11.99                         | 12.06 | 12.02 | 11.86 | 12.18 | 12.07 | 12.20 | 12.11 |
| 802.11a | 5580       | 116     | AVG      | 12.00                         | 12.09 | 11.98 | 11.98 | 12.23 | 12.08 | 12.23 | 12.18 |
| 802.11a | 5660       | 132     | AVG      | 11.91                         | 12.02 | 12.03 | 11.98 | 12.07 | 12.09 | 12.16 | 12.23 |
| 802.11a | 5680       | 136     | AVG      | 11.98                         | 12.16 | 11.98 | 11.91 | 12.12 | 12.04 | 12.22 | 12.16 |
| 802.11a | 5700       | 140     | AVG      | 11.82                         | 12.03 | 11.98 | 11.96 | 12.12 | 12.05 | 11.94 | 12.10 |

Table 6-4. 802.11a (UNII) Maximum Conducted Output Power

| Mode    | Freq [MHz] | Channel | Detector | 20MHz BW 802.11n (5GHz) Conducted Power [dBm] |       |       |       |       |       |       |       |
|---------|------------|---------|----------|-----------------------------------------------|-------|-------|-------|-------|-------|-------|-------|
|         |            |         |          | Data Rate [Mbps]                              |       |       |       |       |       |       |       |
|         |            |         |          | 6.5                                           | 13    | 19.5  | 26    | 39    | 52    | 58.5  | 65    |
| 802.11n | 5180       | 36      | AVG      | 11.57                                         | 11.53 | 11.52 | 11.69 | 11.82 | 11.72 | 11.83 | 11.82 |
| 802.11n | 5200       | 40      | AVG      | 11.47                                         | 11.59 | 11.58 | 11.61 | 11.71 | 11.73 | 11.79 | 11.80 |
| 802.11n | 5220       | 44      | AVG      | 11.43                                         | 11.51 | 11.47 | 11.49 | 11.58 | 11.56 | 11.83 | 11.71 |
| 802.11n | 5240       | 48      | AVG      | 11.51                                         | 11.62 | 11.48 | 11.83 | 11.73 | 11.65 | 11.75 | 11.76 |
| 802.11n | 5260       | 52      | AVG      | 11.61                                         | 11.69 | 11.69 | 12.11 | 12.05 | 11.76 | 12.14 | 11.83 |
| 802.11n | 5280       | 56      | AVG      | 11.66                                         | 11.69 | 11.67 | 12.04 | 12.15 | 11.77 | 12.17 | 12.05 |
| 802.11n | 5300       | 60      | AVG      | 11.76                                         | 11.70 | 11.74 | 12.18 | 12.08 | 11.93 | 12.02 | 12.01 |
| 802.11n | 5320       | 64      | AVG      | 11.69                                         | 11.79 | 11.72 | 12.14 | 12.15 | 11.87 | 12.17 | 12.11 |
| 802.11n | 5500       | 100     | AVG      | 11.78                                         | 11.68 | 11.68 | 12.13 | 12.07 | 12.10 | 12.17 | 12.07 |
| 802.11n | 5520       | 104     | AVG      | 11.79                                         | 11.87 | 11.83 | 12.04 | 12.15 | 12.12 | 12.22 | 12.10 |
| 802.11n | 5540       | 108     | AVG      | 11.82                                         | 11.78 | 11.78 | 12.13 | 12.11 | 12.13 | 12.21 | 12.18 |
| 802.11n | 5560       | 112     | AVG      | 11.86                                         | 11.87 | 11.82 | 12.18 | 12.17 | 12.20 | 12.14 | 12.14 |
| 802.11n | 5580       | 116     | AVG      | 11.93                                         | 11.93 | 11.81 | 12.13 | 12.08 | 12.22 | 12.21 | 12.15 |
| 802.11n | 5660       | 132     | AVG      | 11.96                                         | 11.94 | 11.89 | 12.04 | 12.19 | 12.19 | 12.23 | 12.17 |
| 802.11n | 5680       | 136     | AVG      | 11.87                                         | 11.86 | 11.79 | 12.23 | 12.15 | 12.21 | 12.19 | 12.16 |
| 802.11n | 5700       | 140     | AVG      | 11.85                                         | 11.86 | 11.90 | 12.17 | 12.18 | 12.23 | 12.22 | 12.18 |

Table 6-5. 20MHz BW 802.11n (UNII) Maximum Conducted Output Power

|                                      |                                                                                     |                                                                        |  |  |  |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------|--|--|--|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMN910R4                  |  | FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT<br>(CERTIFICATION) |  |  |  |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1408051620.A3L | Test Dates:<br>07/29-09/1/2014                                                      | EUT Type:<br>Portable Handset                                          |  |  |  | Page 50 of 182                                                                        |                                 |

| Mode    | Freq [MHz] | Channel | Detector | 40MHz BW 802.11n (5GHz) Conducted Power [dBm] |      |      |      |      |      |       |      |
|---------|------------|---------|----------|-----------------------------------------------|------|------|------|------|------|-------|------|
|         |            |         |          | Data Rate [Mbps]                              |      |      |      |      |      |       |      |
|         |            |         |          | 13.5                                          | 27   | 40.5 | 54   | 81   | 108  | 121.5 | 135  |
| 802.11n | 5190       | 38      | AVG      | 9.19                                          | 8.95 | 9.14 | 9.48 | 9.38 | 9.25 | 9.34  | 9.41 |
| 802.11n | 5230       | 46      | AVG      | 9.09                                          | 9.20 | 9.21 | 9.44 | 9.14 | 9.32 | 9.43  | 9.18 |
| 802.11n | 5270       | 54      | AVG      | 9.07                                          | 9.30 | 9.07 | 9.22 | 9.31 | 9.38 | 9.40  | 9.36 |
| 802.11n | 5310       | 62      | AVG      | 9.03                                          | 9.09 | 9.32 | 9.45 | 9.46 | 9.46 | 9.42  | 9.42 |
| 802.11n | 5510       | 102     | AVG      | 9.47                                          | 9.30 | 9.27 | 9.37 | 9.37 | 9.37 | 9.49  | 9.19 |
| 802.11n | 5550       | 110     | AVG      | 9.35                                          | 9.45 | 9.49 | 9.49 | 9.47 | 9.43 | 9.30  | 9.36 |
| 802.11n | 5670       | 134     | AVG      | 9.48                                          | 9.20 | 9.32 | 9.47 | 9.41 | 9.45 | 9.48  | 9.22 |

Table 6-6. 40MHz BW 802.11n (UNII) Maximum Conducted Output Power

| 20MHz BW 802.11ac (5GHz) Conducted Power [dBm] |            |         |          |           |
|------------------------------------------------|------------|---------|----------|-----------|
| Mode                                           | Freq [MHz] | Channel | Detector | Data Rate |
|                                                |            |         |          | 6.5 Mbps  |
| 802.11ac                                       | 5180       | 36      | AVG      | 11.62     |
| 802.11ac                                       | 5200       | 40      | AVG      | 11.52     |
| 802.11ac                                       | 5240       | 48      | AVG      | 11.52     |
| 802.11ac                                       | 5260       | 52      | AVG      | 11.77     |
| 802.11ac                                       | 5280       | 56      | AVG      | 11.73     |
| 802.11ac                                       | 5320       | 64      | AVG      | 11.77     |
| 802.11ac                                       | 5500       | 100     | AVG      | 11.86     |
| 802.11ac                                       | 5580       | 116     | AVG      | 11.97     |
| 802.11ac                                       | 5700       | 140     | AVG      | 11.98     |

Table 6-7. 20MHz BW 802.11ac (UNII) Maximum Conducted Output Power

| 40MHz BW 802.11ac (5GHz) Conducted Power [dBm] |            |         |          |           |
|------------------------------------------------|------------|---------|----------|-----------|
| Mode                                           | Freq [MHz] | Channel | Detector | Data Rate |
|                                                |            |         |          | 13.5 Mbps |
| 802.11ac                                       | 5190       | 38      | AVG      | 9.13      |
| 802.11ac                                       | 5230       | 46      | AVG      | 9.02      |
| 802.11ac                                       | 5270       | 54      | AVG      | 9.01      |
| 802.11ac                                       | 5310       | 62      | AVG      | 9.09      |
| 802.11ac                                       | 5510       | 102     | AVG      | 9.18      |
| 802.11ac                                       | 5550       | 110     | AVG      | 9.32      |
| 802.11ac                                       | 5670       | 134     | AVG      | 9.34      |

Table 6-7. 40MHz BW 802.11ac (UNII) Maximum Conducted Output Power

| Mode     | Freq<br>[MHz] | Channel | Detector | 80MHz BW 802.11ac (5GHz) Conducted Power [dBm] |      |      |       |       |       |       |       |       |       |
|----------|---------------|---------|----------|------------------------------------------------|------|------|-------|-------|-------|-------|-------|-------|-------|
|          |               |         |          | Data Rate [Mbps]                               |      |      |       |       |       |       |       |       |       |
|          |               |         |          | 29.3                                           | 58.5 | 87.8 | 117   | 175.5 | 234   | 263.3 | 292.5 | 351   | 390   |
| 802.11ac | 5210          | 42      | AVG      | 9.88                                           | 9.71 | 9.61 | 9.99  | 10.07 | 9.94  | 9.89  | 9.95  | 10.04 | 10.02 |
| 802.11ac | 5290          | 58      | AVG      | 9.96                                           | 9.71 | 9.65 | 10.10 | 10.10 | 10.01 | 9.92  | 10.04 | 10.13 | 10.15 |
| 802.11ac | 5530          | 106     | AVG      | 9.92                                           | 9.98 | 9.95 | 10.01 | 10.13 | 9.93  | 9.87  | 9.97  | 10.06 | 10.05 |

Table 6-8. 80MHz BW 802.11ac (UNII) Maximum Conducted Output Power

|                                      |                                                                                     |                                                                     |  |  |  |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------|--|--|--|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMN910R4                  |  | FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION) |  |  |  |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1408051620.A3L | Test Dates:<br>07/29-09/1/2014                                                      | EUT Type:<br>Portable Handset                                       |  |  |  | Page 51 of 182                                                                        |                                 |



## Antenna-2 Conducted Output Power Measurements

| Mode    | Freq [MHz] | Channel | Detector | 802.11a Conducted Power [dBm] |       |       |       |       |       |       |       |
|---------|------------|---------|----------|-------------------------------|-------|-------|-------|-------|-------|-------|-------|
|         |            |         |          | Data Rate [Mbps]              |       |       |       |       |       |       |       |
|         |            |         |          | 6                             | 9     | 12    | 18    | 24    | 36    | 48    | 54    |
| 802.11a | 5180       | 36      | AVG      | 11.75                         | 11.79 | 11.83 | 11.87 | 11.91 | 12.02 | 12.01 | 12.10 |
| 802.11a | 5200       | 40      | AVG      | 11.92                         | 11.75 | 11.71 | 11.84 | 12.11 | 12.13 | 12.12 | 12.12 |
| 802.11a | 5220       | 44      | AVG      | 11.75                         | 11.81 | 11.76 | 11.75 | 11.92 | 12.06 | 11.88 | 12.07 |
| 802.11a | 5240       | 48      | AVG      | 11.59                         | 11.54 | 11.63 | 11.63 | 11.72 | 12.02 | 11.97 | 11.92 |
| 802.11a | 5260       | 52      | AVG      | 11.54                         | 11.55 | 11.34 | 11.44 | 11.68 | 11.73 | 11.74 | 11.74 |
| 802.11a | 5280       | 56      | AVG      | 11.37                         | 11.33 | 11.36 | 11.36 | 11.52 | 11.53 | 11.68 | 11.72 |
| 802.11a | 5300       | 60      | AVG      | 11.24                         | 11.38 | 11.23 | 11.29 | 11.31 | 11.50 | 11.59 | 11.55 |
| 802.11a | 5320       | 64      | AVG      | 11.23                         | 11.07 | 11.18 | 11.18 | 11.44 | 11.56 | 11.36 | 11.51 |
| 802.11a | 5500       | 100     | AVG      | 11.40                         | 11.38 | 11.30 | 11.25 | 11.90 | 11.64 | 11.74 | 11.84 |
| 802.11a | 5520       | 104     | AVG      | 11.45                         | 11.48 | 11.45 | 11.56 | 11.91 | 11.71 | 11.64 | 12.06 |
| 802.11a | 5540       | 108     | AVG      | 11.53                         | 11.15 | 11.19 | 11.41 | 11.96 | 11.66 | 11.58 | 11.98 |
| 802.11a | 5560       | 112     | AVG      | 11.49                         | 11.37 | 11.22 | 11.38 | 11.80 | 11.55 | 11.63 | 11.93 |
| 802.11a | 5580       | 116     | AVG      | 11.41                         | 11.25 | 11.25 | 11.47 | 11.95 | 11.72 | 11.39 | 11.94 |
| 802.11a | 5660       | 132     | AVG      | 11.54                         | 11.35 | 11.32 | 11.62 | 11.95 | 11.54 | 11.71 | 11.91 |
| 802.11a | 5680       | 136     | AVG      | 11.68                         | 11.33 | 11.54 | 11.40 | 12.09 | 11.49 | 11.77 | 12.10 |
| 802.11a | 5700       | 140     | AVG      | 11.92                         | 11.49 | 11.43 | 11.49 | 12.02 | 11.86 | 11.89 | 12.12 |

Table 6-9. 802.11a (UNII) Maximum Conducted Output Power

| Mode    | Freq [MHz] | Channel | Detector | 20MHz BW 802.11n (5GHz) Conducted Power [dBm] |       |       |       |       |       |       |       |
|---------|------------|---------|----------|-----------------------------------------------|-------|-------|-------|-------|-------|-------|-------|
|         |            |         |          | Data Rate [Mbps]                              |       |       |       |       |       |       |       |
|         |            |         |          | 6.5                                           | 13    | 19.5  | 26    | 39    | 52    | 58.5  | 65    |
| 802.11n | 5180       | 36      | AVG      | 11.96                                         | 11.94 | 11.87 | 12.02 | 12.07 | 12.05 | 12.08 | 12.07 |
| 802.11n | 5200       | 40      | AVG      | 11.96                                         | 11.78 | 11.99 | 12.06 | 12.13 | 12.00 | 12.06 | 12.11 |
| 802.11n | 5220       | 44      | AVG      | 11.86                                         | 11.86 | 11.97 | 12.03 | 12.09 | 12.04 | 12.10 | 12.15 |
| 802.11n | 5240       | 48      | AVG      | 11.83                                         | 11.83 | 11.92 | 11.94 | 12.11 | 11.91 | 12.10 | 12.13 |
| 802.11n | 5260       | 52      | AVG      | 11.56                                         | 11.50 | 11.53 | 11.68 | 11.76 | 11.74 | 11.69 | 11.71 |
| 802.11n | 5280       | 56      | AVG      | 11.67                                         | 11.63 | 11.57 | 11.69 | 11.76 | 11.72 | 11.72 | 11.71 |
| 802.11n | 5300       | 60      | AVG      | 11.55                                         | 11.54 | 11.51 | 11.76 | 11.74 | 11.70 | 11.67 | 11.71 |
| 802.11n | 5320       | 64      | AVG      | 11.47                                         | 11.51 | 11.42 | 11.66 | 11.61 | 11.62 | 11.56 | 11.59 |
| 802.11n | 5500       | 100     | AVG      | 11.24                                         | 11.28 | 11.29 | 11.81 | 11.56 | 11.59 | 11.44 | 11.65 |
| 802.11n | 5520       | 104     | AVG      | 11.38                                         | 11.30 | 11.31 | 11.68 | 11.55 | 11.63 | 11.72 | 11.63 |
| 802.11n | 5540       | 108     | AVG      | 11.38                                         | 11.41 | 11.39 | 11.59 | 11.63 | 11.66 | 11.73 | 11.56 |
| 802.11n | 5560       | 112     | AVG      | 11.32                                         | 11.51 | 11.20 | 11.68 | 11.63 | 11.52 | 11.57 | 11.63 |
| 802.11n | 5580       | 116     | AVG      | 11.54                                         | 11.42 | 11.45 | 11.54 | 11.71 | 11.54 | 11.57 | 11.48 |
| 802.11n | 5660       | 132     | AVG      | 11.52                                         | 11.45 | 11.46 | 11.79 | 11.78 | 11.79 | 11.86 | 11.73 |
| 802.11n | 5680       | 136     | AVG      | 11.70                                         | 11.61 | 11.63 | 11.74 | 11.88 | 11.87 | 11.78 | 11.74 |
| 802.11n | 5700       | 140     | AVG      | 11.51                                         | 11.40 | 11.49 | 11.77 | 11.82 | 11.73 | 11.67 | 11.61 |

Table 6-10. 20MHz BW 802.11n (UNII) Maximum Conducted Output Power

|                                      |                                                                                     |                                                                        |  |  |  |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------|--|--|--|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMN910R4                  |  | FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT<br>(CERTIFICATION) |  |  |  |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1408051620.A3L | Test Dates:<br>07/29-09/1/2014                                                      | EUT Type:<br>Portable Handset                                          |  |  |  | Page 52 of 182                                                                        |                                 |

| Mode    | Freq [MHz] | Channel | Detector | 40MHz BW 802.11n (5GHz) Conducted Power [dBm] |      |      |      |      |      |       |      |
|---------|------------|---------|----------|-----------------------------------------------|------|------|------|------|------|-------|------|
|         |            |         |          | Data Rate [Mbps]                              |      |      |      |      |      |       |      |
|         |            |         |          | 13.5                                          | 27   | 40.5 | 54   | 81   | 108  | 121.5 | 135  |
| 802.11n | 5190       | 38      | AVG      | 9.29                                          | 9.26 | 9.41 | 9.40 | 9.41 | 9.26 | 9.35  | 9.24 |
| 802.11n | 5230       | 46      | AVG      | 9.27                                          | 9.34 | 9.15 | 9.49 | 9.32 | 9.40 | 9.19  | 9.27 |
| 802.11n | 5270       | 54      | AVG      | 8.94                                          | 8.96 | 8.93 | 9.34 | 9.19 | 9.17 | 9.31  | 9.22 |
| 802.11n | 5310       | 62      | AVG      | 8.73                                          | 8.99 | 8.82 | 8.90 | 9.11 | 9.10 | 9.21  | 9.22 |
| 802.11n | 5510       | 102     | AVG      | 8.80                                          | 8.93 | 8.75 | 8.99 | 9.27 | 9.14 | 9.43  | 9.21 |
| 802.11n | 5550       | 110     | AVG      | 8.80                                          | 9.02 | 8.88 | 8.95 | 9.06 | 9.02 | 9.30  | 9.26 |
| 802.11n | 5670       | 134     | AVG      | 8.77                                          | 9.04 | 9.05 | 9.17 | 9.25 | 9.22 | 9.35  | 9.28 |

**Table 6-11. 40MHz BW 802.11n (UNII) Maximum Conducted Output Power**

| 20MHz BW 802.11ac (5GHz) Conducted Power [dBm] |            |         |          |           |
|------------------------------------------------|------------|---------|----------|-----------|
| Mode                                           | Freq [MHz] | Channel | Detector | Data Rate |
|                                                |            |         |          | 6.5 Mbps  |
| 802.11ac                                       | 5180       | 36      | AVG      | 12.00     |
| 802.11ac                                       | 5200       | 40      | AVG      | 11.90     |
| 802.11ac                                       | 5240       | 48      | AVG      | 11.66     |
| 802.11ac                                       | 5260       | 52      | AVG      | 11.55     |
| 802.11ac                                       | 5280       | 56      | AVG      | 11.44     |
| 802.11ac                                       | 5320       | 64      | AVG      | 11.53     |
| 802.11ac                                       | 5500       | 100     | AVG      | 11.51     |
| 802.11ac                                       | 5580       | 116     | AVG      | 11.47     |
| 802.11ac                                       | 5700       | 140     | AVG      | 11.70     |

**Table 6-12. 20MHz BW 802.11ac (UNII) Maximum Conducted Output Power**

| 40MHz BW 802.11ac (5GHz) Conducted Power [dBm] |            |         |          |           |
|------------------------------------------------|------------|---------|----------|-----------|
| Mode                                           | Freq [MHz] | Channel | Detector | Data Rate |
|                                                |            |         |          | 13.5 Mbps |
| 802.11ac                                       | 5190       | 38      | AVG      | 9.00      |
| 802.11ac                                       | 5230       | 46      | AVG      | 9.12      |
| 802.11ac                                       | 5270       | 54      | AVG      | 8.61      |
| 802.11ac                                       | 5310       | 62      | AVG      | 8.45      |
| 802.11ac                                       | 5510       | 102     | AVG      | 8.54      |
| 802.11ac                                       | 5550       | 110     | AVG      | 8.64      |
| 802.11ac                                       | 5670       | 134     | AVG      | 8.67      |

**Table 6-7. 40MHz BW 802.11ac (UNII) Maximum Conducted Output Power**

| Mode     | Freq<br>[MHz] | Channel | Detector | 80MHz BW 802.11ac (5GHz) Conducted Power [dBm] |      |      |       |       |       |       |       |       |       |
|----------|---------------|---------|----------|------------------------------------------------|------|------|-------|-------|-------|-------|-------|-------|-------|
|          |               |         |          | Data Rate [Mbps]                               |      |      |       |       |       |       |       |       |       |
|          |               |         |          | 29.3                                           | 58.5 | 87.8 | 117   | 175.5 | 234   | 263.3 | 292.5 | 351   | 390   |
| 802.11ac | 5210          | 42      | AVG      | 10.04                                          | 9.95 | 9.98 | 10.17 | 10.24 | 10.15 | 10.26 | 10.12 | 10.21 | 10.19 |
| 802.11ac | 5290          | 58      | AVG      | 9.59                                           | 9.54 | 9.60 | 9.77  | 9.76  | 9.64  | 9.80  | 9.61  | 9.79  | 9.71  |
| 802.11ac | 5530          | 106     | AVG      | 9.50                                           | 9.43 | 9.55 | 9.59  | 9.72  | 9.72  | 9.68  | 9.71  | 9.66  | 9.62  |

**Table 6-13. 80MHz BW 802.11ac (UNII) Maximum Conducted Output Power**

|                                             |                                                                                     |                                                                            |  |  |  |                                                                                       |                                        |
|---------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------|--|--|--|---------------------------------------------------------------------------------------|----------------------------------------|
| <b>FCC ID:</b> A3LSMN910R4                  |  | <b>FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)</b> |  |  |  |  | <b>Reviewed by:</b><br>Quality Manager |
| <b>Test Report S/N:</b><br>0Y1408051620.A3L | <b>Test Dates:</b><br>07/29-09/1/2014                                               | <b>EUT Type:</b><br>Portable Handset                                       |  |  |  | Page 53 of 182                                                                        |                                        |

## MIMO Maximum Conducted Output Power Measurements

| Mode    | Freq [MHz] | Channel | Detector | MCS8  |       |       |
|---------|------------|---------|----------|-------|-------|-------|
|         |            |         |          | ANT1  | ANT2  | MIMO  |
| 802.11n | 5180       | 36      | AVG      | 11.57 | 11.96 | 14.78 |
| 802.11n | 5200       | 40      | AVG      | 11.47 | 11.96 | 14.73 |
| 802.11n | 5220       | 44      | AVG      | 11.43 | 11.86 | 14.66 |
| 802.11n | 5240       | 48      | AVG      | 11.51 | 11.83 | 14.68 |
| 802.11n | 5260       | 52      | AVG      | 11.61 | 11.56 | 14.60 |
| 802.11n | 5280       | 56      | AVG      | 11.66 | 11.67 | 14.67 |
| 802.11n | 5300       | 60      | AVG      | 11.76 | 11.55 | 14.67 |
| 802.11n | 5320       | 64      | AVG      | 11.69 | 11.47 | 14.59 |
| 802.11n | 5500       | 100     | AVG      | 11.78 | 11.24 | 14.53 |
| 802.11n | 5520       | 104     | AVG      | 11.79 | 11.38 | 14.60 |
| 802.11n | 5540       | 108     | AVG      | 11.82 | 11.38 | 14.62 |
| 802.11n | 5560       | 112     | AVG      | 11.86 | 11.32 | 14.61 |
| 802.11n | 5580       | 116     | AVG      | 11.93 | 11.54 | 14.75 |
| 802.11n | 5660       | 132     | AVG      | 11.96 | 11.52 | 14.75 |
| 802.11n | 5680       | 136     | AVG      | 11.87 | 11.70 | 14.80 |
| 802.11n | 5700       | 140     | AVG      | 11.85 | 11.51 | 14.69 |

Table 6-14. MIMO 20MHz BW 802.11n (UNII) Maximum Conducted Output Power

| Mode    | Freq [MHz] | Channel | Detector | MCS8 |      |       |
|---------|------------|---------|----------|------|------|-------|
|         |            |         |          | ANT1 | ANT2 | MIMO  |
| 802.11n | 5190       | 38      | AVG      | 9.19 | 9.29 | 12.25 |
| 802.11n | 5230       | 46      | AVG      | 9.09 | 9.27 | 12.19 |
| 802.11n | 5270       | 54      | AVG      | 9.07 | 8.94 | 12.02 |
| 802.11n | 5310       | 62      | AVG      | 9.03 | 8.73 | 11.89 |
| 802.11n | 5510       | 102     | AVG      | 9.47 | 8.80 | 12.16 |
| 802.11n | 5550       | 110     | AVG      | 9.35 | 8.80 | 12.09 |
| 802.11n | 5670       | 134     | AVG      | 9.48 | 8.77 | 12.15 |

Table 6-15. MIMO 40MHz BW 802.11n (UNII) Maximum Conducted Output Power

|                                      |                                                                                     |                                                                        |  |  |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------|--|--|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMN910R4                  |  | FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT<br>(CERTIFICATION) |  |  |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1408051620.A3L | Test Dates:<br>07/29-09/1/2014                                                      | EUT Type:<br>Portable Handset                                          |  |  |                                                                                       | Page 54 of 182                  |

| 20MHz BW 802.11ac (5GHz) Conducted Power [dBm] |            |         |          |       |       |       |
|------------------------------------------------|------------|---------|----------|-------|-------|-------|
| Mode                                           | Freq [MHz] | Channel | Detector | MCS0  |       |       |
|                                                |            |         |          | ANT1  | ANT2  | MIMO  |
| 802.11ac                                       | 5180       | 36      | AVG      | 11.62 | 12.00 | 14.82 |
| 802.11ac                                       | 5200       | 40      | AVG      | 11.52 | 11.90 | 14.72 |
| 802.11ac                                       | 5240       | 48      | AVG      | 11.52 | 11.66 | 14.60 |
| 802.11ac                                       | 5260       | 52      | AVG      | 11.77 | 11.55 | 14.67 |
| 802.11ac                                       | 5280       | 56      | AVG      | 11.73 | 11.44 | 14.60 |
| 802.11ac                                       | 5320       | 64      | AVG      | 11.77 | 11.53 | 14.66 |
| 802.11ac                                       | 5500       | 100     | AVG      | 11.86 | 11.51 | 14.70 |
| 802.11ac                                       | 5580       | 116     | AVG      | 11.97 | 11.47 | 14.73 |
| 802.11ac                                       | 5700       | 140     | AVG      | 11.98 | 11.70 | 14.85 |

**Table 6-16. MIMO 20MHz BW 802.11ac (UNII) Maximum Conducted Output Power**

| 40MHz BW 802.11ac (5GHz) Conducted Power [dBm] |            |         |          |      |      |       |
|------------------------------------------------|------------|---------|----------|------|------|-------|
| Mode                                           | Freq [MHz] | Channel | Detector | MCS0 |      |       |
|                                                |            |         |          | ANT1 | ANT2 | MIMO  |
| 802.11ac                                       | 5190       | 38      | AVG      | 9.13 | 9.00 | 12.08 |
| 802.11ac                                       | 5230       | 46      | AVG      | 9.02 | 9.12 | 12.08 |
| 802.11ac                                       | 5270       | 54      | AVG      | 9.01 | 8.61 | 11.82 |
| 802.11ac                                       | 5310       | 62      | AVG      | 9.09 | 8.45 | 11.80 |
| 802.11ac                                       | 5510       | 102     | AVG      | 9.18 | 8.54 | 11.88 |
| 802.11ac                                       | 5550       | 110     | AVG      | 9.32 | 8.64 | 12.00 |
| 802.11ac                                       | 5670       | 134     | AVG      | 9.34 | 8.67 | 12.03 |

**Table 6-7. MIMO 40MHz BW 802.11ac (UNII) Maximum Conducted Output Power**

| Mode     | Freq [MHz] | Channel | Detector | MCS0 |       |       |
|----------|------------|---------|----------|------|-------|-------|
|          |            |         |          | ANT1 | ANT2  | MIMO  |
| 802.11ac | 5210       | 42      | AVG      | 9.88 | 10.04 | 12.97 |
| 802.11ac | 5290       | 58      | AVG      | 9.96 | 9.59  | 12.79 |
| 802.11ac | 5530       | 106     | AVG      | 9.92 | 9.50  | 12.72 |

**Table 6-17. MIMO 80MHz BW 802.11ac (UNII) Maximum Conducted Output Power**

**Note:**

Per KDB 662911 v02r01 Section E)1), the conducted powers at Antenna 1 and Antenna 2 were first measured separately during MIMO transmission as shown in the section above. The measured values were then summed in linear power units then converted back to dBm.

**Sample MIMO Calculation:**

At 5180MHz the average conducted output power was measured to be 11.57 dBm for Antenna-1 and 11.96 dBm for Antenna-2.

$$\text{Antenna 1} + \text{Antenna 2} = \text{MIMO}$$

$$(11.57 \text{ dBm} + 11.96 \text{ dBm}) = (14.36 \text{ mW} + 15.70 \text{ mW}) = 30.06 \text{ mW} = 14.78 \text{ dBm}$$

|                                             |                                                                                     |                                                                            |                                                                                       |                                        |
|---------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| <b>FCC ID:</b> A3LSMN910R4                  |  | <b>FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)</b> |  | <b>Reviewed by:</b><br>Quality Manager |
| <b>Test Report S/N:</b><br>0Y1408051620.A3L | <b>Test Dates:</b><br>07/29-09/1/2014                                               | <b>EUT Type:</b><br>Portable Handset                                       |                                                                                       | Page 55 of 182                         |

## 6.4 Maximum Power Spectral Density – 802.11a/n/ac §15.407(a.1)(2.5)

### Test Overview and Limit

The spectrum analyzer was connected to the antenna terminal while the EUT was operating at its maximum duty cycle (>98%), at its maximum power control level, as defined in KDB 789033 v01r04, and at the appropriate frequencies. Method SA-1, as defined in KDB 789033 v01r04, was used to measure the power spectral density.

***In the 5.15 – 5.25GHz band, the maximum permissible power spectral density is 4dBm/MHz.***

***In the 5.25 – 5.35GHz, 5.47 – 5.725GHz bands, the maximum permissible power spectral density is 11dBm/MHz.***

### Test Procedure Used

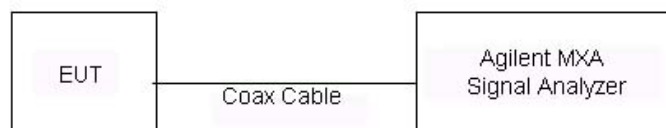
KDB 789033 v01r04 – Section F  
KDB 662911 v02r01 – Section E)2) Measure-and-Sum Technique

### Test Settings

1. Analyzer was set to the center frequency of the UNII channel under investigation
2. Span was set to encompass the entire emission bandwidth of the signal
3. RBW = 1MHz
4. VBW = 3MHz
5. Number of sweep points  $\geq 2 \times (\text{span}/\text{RBW})$
6. Sweep time = auto
7. Detector = power averaging (RMS)
8. Trigger was set to free run since the EUT was operating at a duty cycle  $\geq 98\%$
9. Trace was averaged over 100 sweeps
10. The peak search function of the spectrum analyzer was used to find the peak of the spectrum.

### Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



**Figure 6-3. Test Instrument & Measurement Setup**

### Test Notes

None

|                                      |                                                                                     |                                                                        |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMN910R4                  |  | FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT<br>(CERTIFICATION) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1408051620.A3L | Test Dates:<br>07/29-09/1/2014                                                      | EUT Type:<br>Portable Handset                                          | Page 56 of 182                                                                        |                                 |

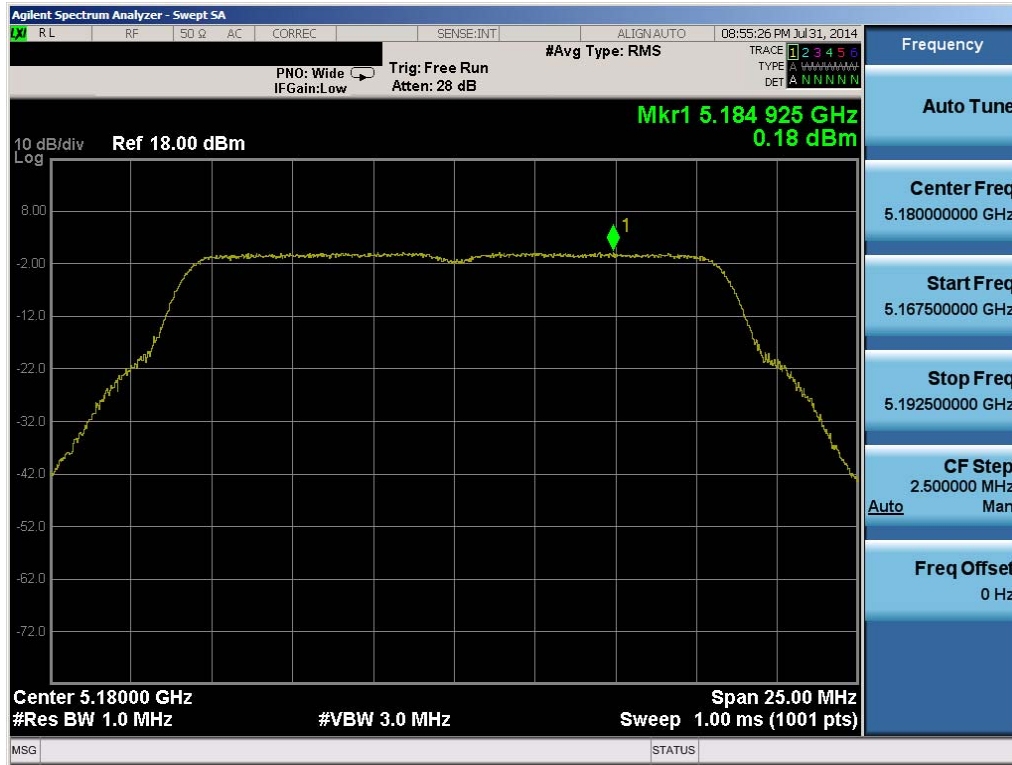
## Antenna-1 Power Spectral Density Measurements

|         | Frequency [MHz] | Channel No. | 802.11 Mode | Data Rate [Mbps] | Measured Power Density [dBm] | Max Permissible Power Density [dBm/MHz] | Margin [dB] | Pass / Fail |
|---------|-----------------|-------------|-------------|------------------|------------------------------|-----------------------------------------|-------------|-------------|
| Band 1  | 5180            | 36          | a           | 6                | 0.18                         | 4.0                                     | -3.82       | Pass        |
|         | 5200            | 40          | a           | 6                | 0.34                         | 4.0                                     | -3.66       | Pass        |
|         | 5240            | 48          | a           | 6                | 0.25                         | 4.0                                     | -3.75       | Pass        |
|         | 5180            | 36          | n (20MHz)   | 6.5/7.2 (MCS0)   | 0.33                         | 4.0                                     | -3.67       | Pass        |
|         | 5200            | 40          | n (20MHz)   | 6.5/7.2 (MCS0)   | 0.16                         | 4.0                                     | -3.85       | Pass        |
|         | 5240            | 48          | n (20MHz)   | 6.5/7.2 (MCS0)   | 0.22                         | 4.0                                     | -3.78       | Pass        |
|         | 5190            | 38          | n (40MHz)   | 13.5/15 (MCS0)   | -3.46                        | 4.0                                     | -7.46       | Pass        |
|         | 5230            | 46          | n (40MHz)   | 13.5/15 (MCS0)   | -3.50                        | 4.0                                     | -7.50       | Pass        |
|         | 5210            | 42          | ac (80MHz)  | 29.3/32.5 (MCS0) | -8.06                        | 4.0                                     | -12.06      | Pass        |
| Band 2A | 5260            | 52          | a           | 6                | 0.32                         | 11.0                                    | -10.68      | Pass        |
|         | 5280            | 56          | a           | 6                | 0.69                         | 11.0                                    | -10.31      | Pass        |
|         | 5320            | 64          | a           | 6                | 0.64                         | 11.0                                    | -10.37      | Pass        |
|         | 5260            | 52          | n (20MHz)   | 6.5/7.2 (MCS0)   | 0.54                         | 11.0                                    | -10.46      | Pass        |
|         | 5280            | 56          | n (20MHz)   | 6.5/7.2 (MCS0)   | 0.52                         | 11.0                                    | -10.48      | Pass        |
|         | 5320            | 64          | n (20MHz)   | 6.5/7.2 (MCS0)   | 0.52                         | 11.0                                    | -10.48      | Pass        |
|         | 5270            | 54          | n (40MHz)   | 13.5/15 (MCS0)   | -3.31                        | 11.0                                    | -14.31      | Pass        |
|         | 5310            | 62          | n (40MHz)   | 13.5/15 (MCS0)   | -3.30                        | 11.0                                    | -14.30      | Pass        |
|         | 5290            | 58          | ac (80MHz)  | 29.3/32.5 (MCS0) | -7.87                        | 11.0                                    | -18.87      | Pass        |
| Band 2C | 5500            | 100         | a           | 6                | 1.40                         | 11.0                                    | -9.60       | Pass        |
|         | 5580            | 116         | a           | 6                | 1.55                         | 11.0                                    | -9.45       | Pass        |
|         | 5700            | 140         | a           | 6                | 1.72                         | 11.0                                    | -9.28       | Pass        |
|         | 5500            | 100         | n (20MHz)   | 6.5/7.2 (MCS0)   | 1.57                         | 11.0                                    | -9.44       | Pass        |
|         | 5580            | 116         | n (20MHz)   | 6.5/7.2 (MCS0)   | 1.60                         | 11.0                                    | -9.40       | Pass        |
|         | 5700            | 140         | n (20MHz)   | 6.5/7.2 (MCS0)   | 1.58                         | 11.0                                    | -9.43       | Pass        |
|         | 5510            | 102         | n (40MHz)   | 13.5/15 (MCS0)   | -2.34                        | 11.0                                    | -13.34      | Pass        |
|         | 5550            | 110         | n (40MHz)   | 13.5/15 (MCS0)   | -2.49                        | 11.0                                    | -13.49      | Pass        |
|         | 5670            | 134         | n (40MHz)   | 13.5/15 (MCS0)   | -2.32                        | 11.0                                    | -13.32      | Pass        |
|         | 5530            | 106         | ac (80MHz)  | 29.3/32.5 (MCS0) | -6.91                        | 11.0                                    | -17.91      | Pass        |

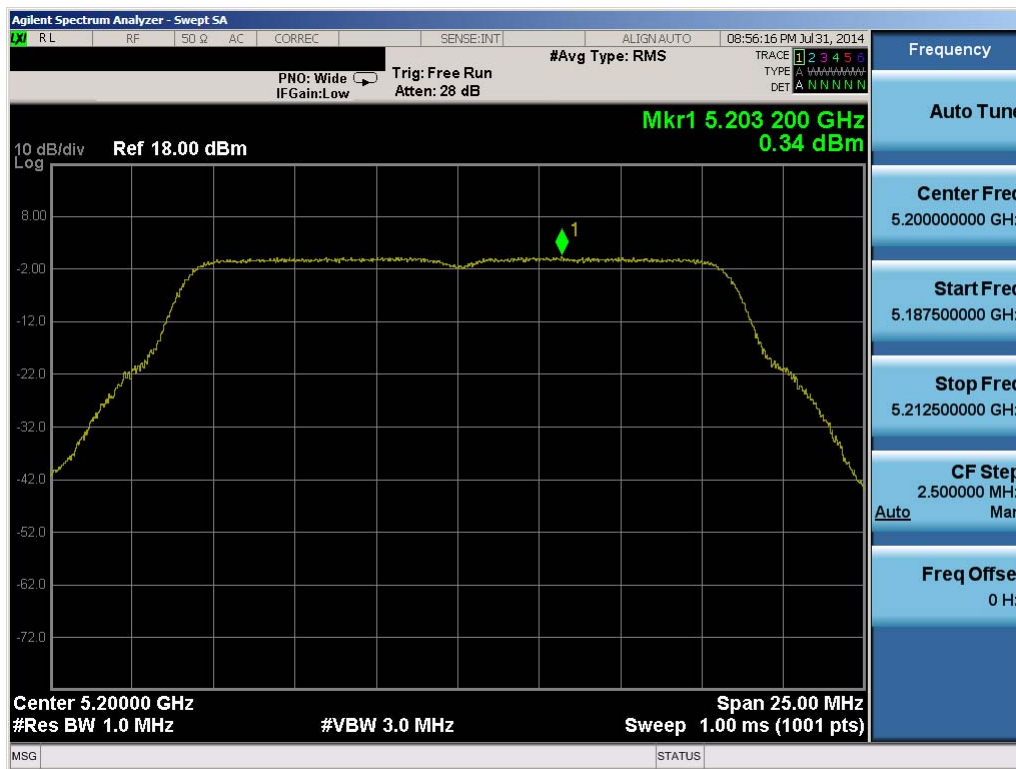
**Table 6-18. Conducted Power Spectral Density Measurements**

|                                      |                                                                                     |                                                                     |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMN910R4                  |  | FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1408051620.A3L | Test Dates:<br>07/29-09/1/2014                                                      | EUT Type:<br>Portable Handset                                       | Page 57 of 182                                                                        |                                 |





Plot 6-69. Peak Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 36)

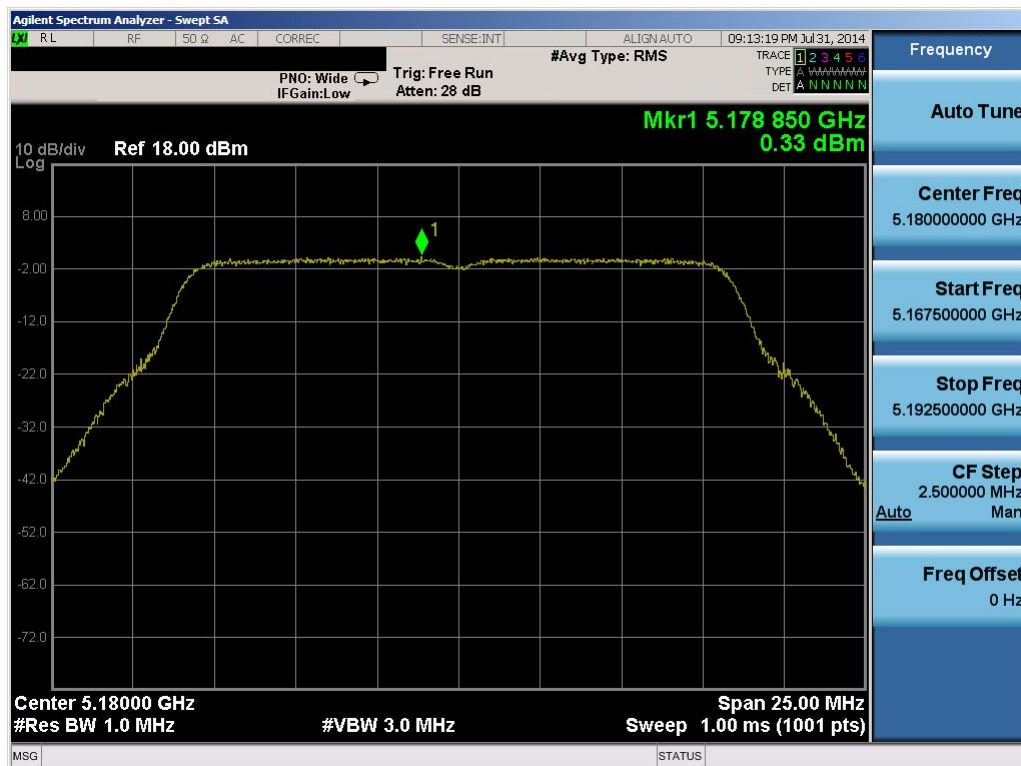


Plot 6-70. Peak Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 40)

|                                      |                                               |                                                                        |                |                                 |
|--------------------------------------|-----------------------------------------------|------------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN910R4                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1408051620.A3L | Test Dates:<br>07/29-09/1/2014                | EUT Type:<br>Portable Handset                                          |                | Page 58 of 182                  |

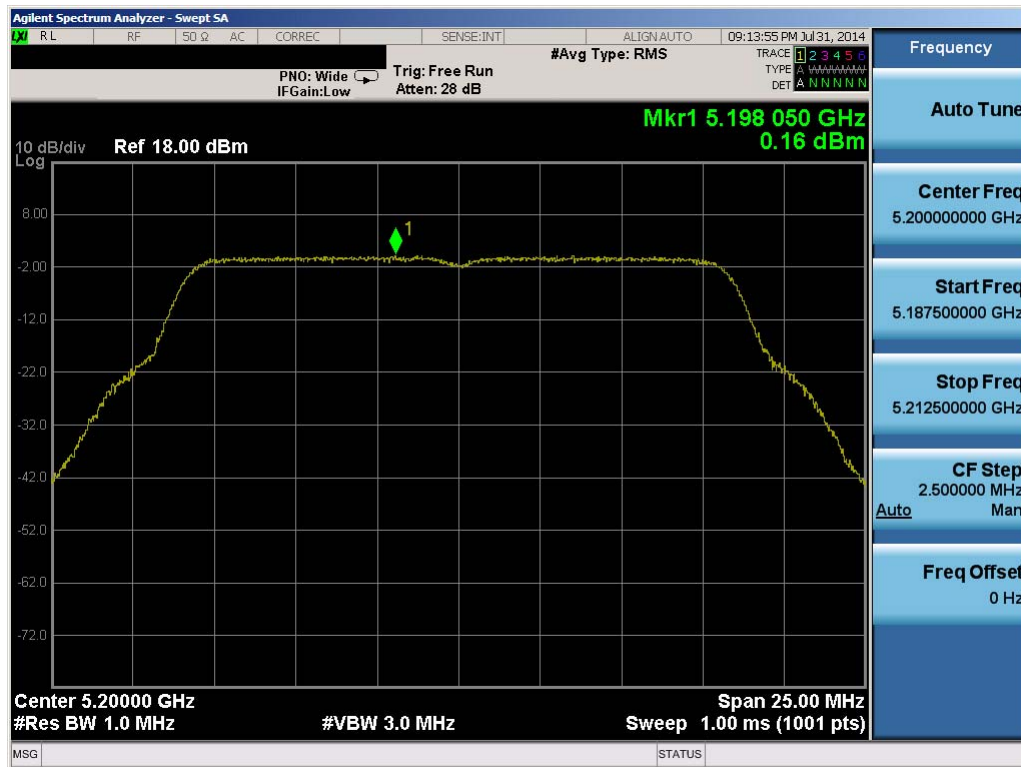


Plot 6-71. Peak Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 48)

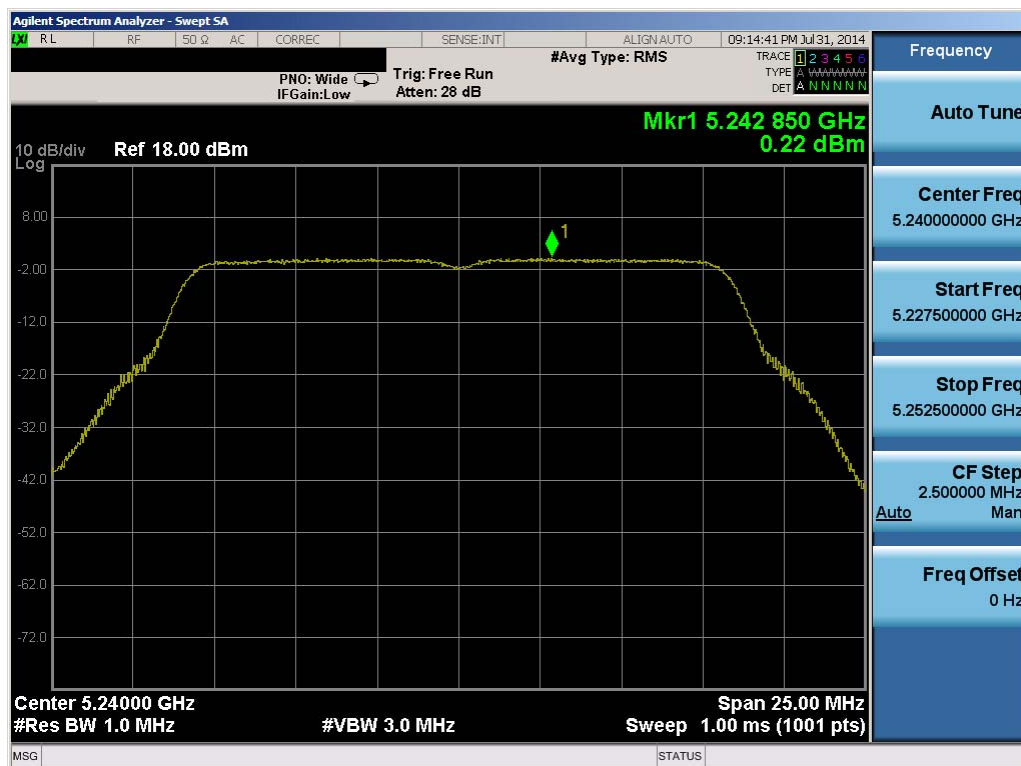


Plot 6-72. Peak Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 36)

|                                      |                                               |                                                                        |                |                                 |
|--------------------------------------|-----------------------------------------------|------------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN910R4                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1408051620.A3L | Test Dates:<br>07/29-09/1/2014                | EUT Type:<br>Portable Handset                                          |                | Page 59 of 182                  |

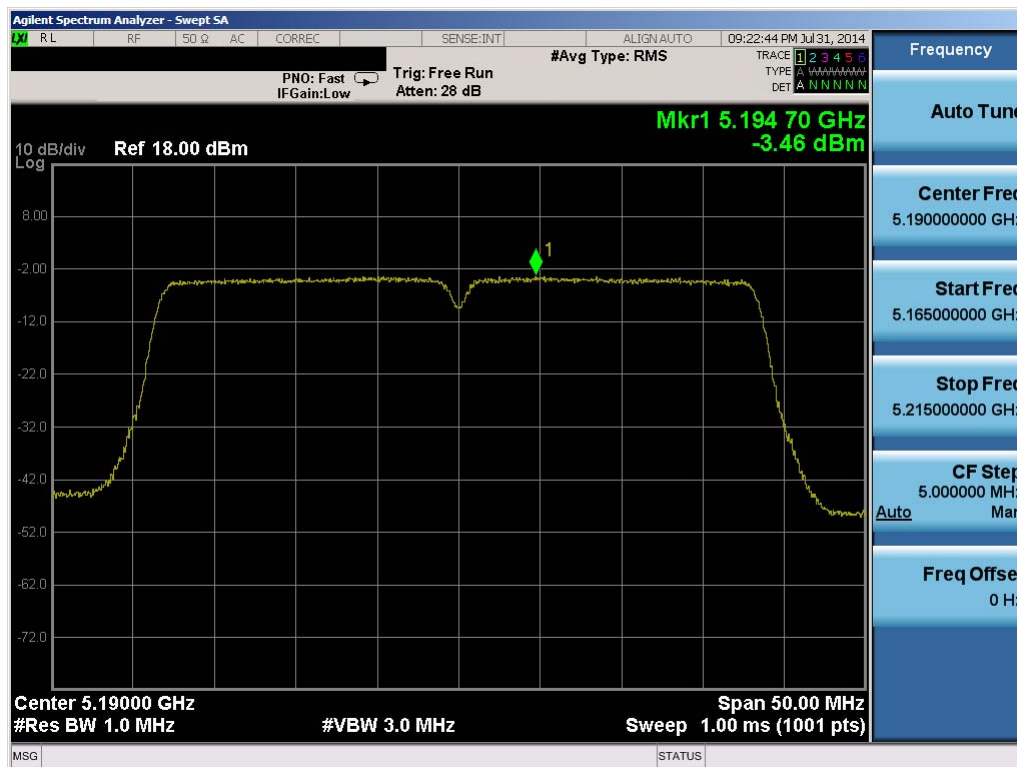


Plot 6-73. Peak Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 40)

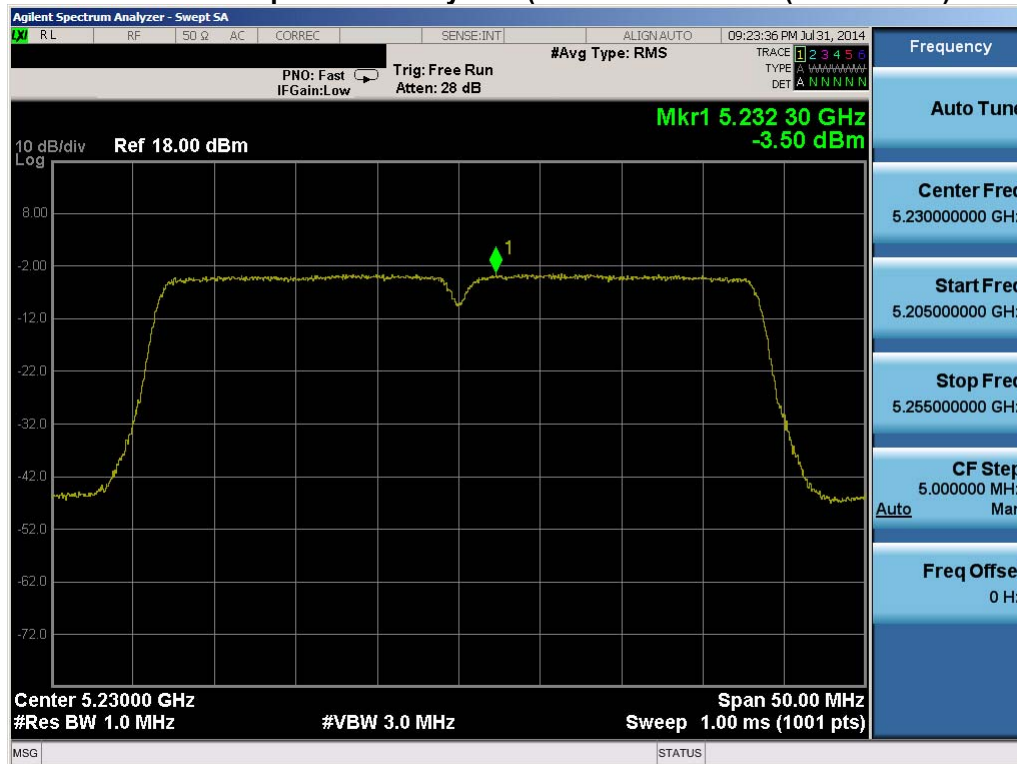


Plot 6-74. Peak Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 48)

|                                      |                                               |                                                                        |                |                                 |
|--------------------------------------|-----------------------------------------------|------------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN910R4                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1408051620.A3L | Test Dates:<br>07/29-09/1/2014                | EUT Type:<br>Portable Handset                                          |                | Page 60 of 182                  |



Plot 6-75. Peak Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 1) – Ch. 38)

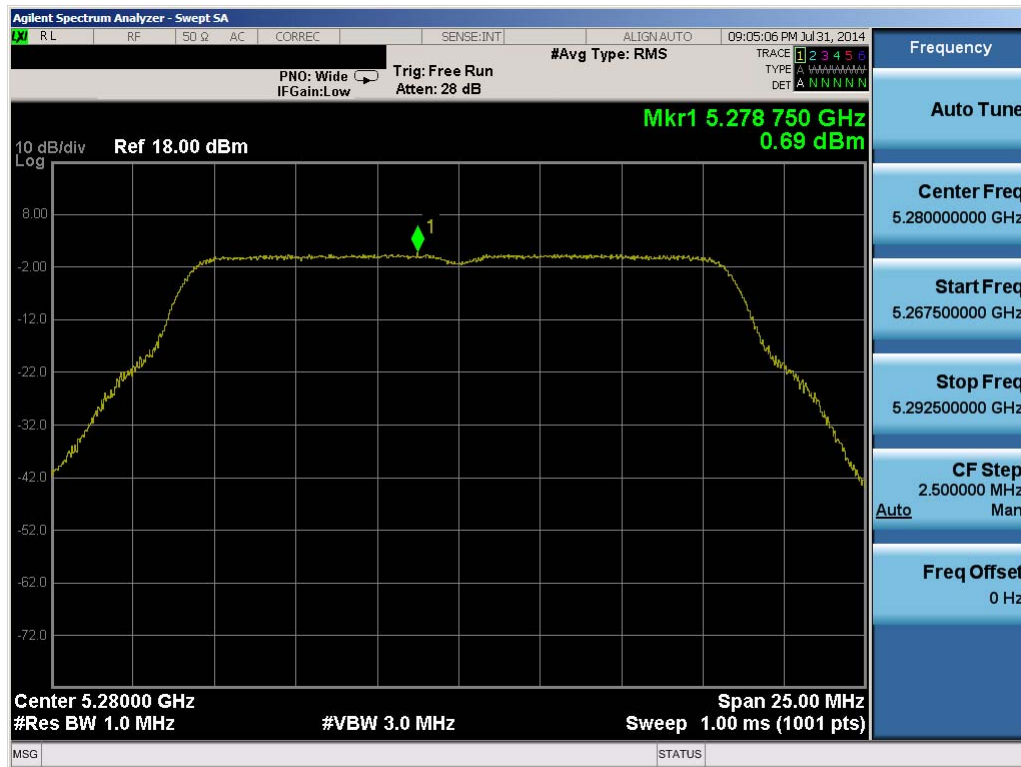


Plot 6-76. Peak Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 1) – Ch. 46)

|                                      |                                               |                                                                        |                |                                 |
|--------------------------------------|-----------------------------------------------|------------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN910R4                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1408051620.A3L | Test Dates:<br>07/29-09/1/2014                | EUT Type:<br>Portable Handset                                          |                | Page 61 of 182                  |







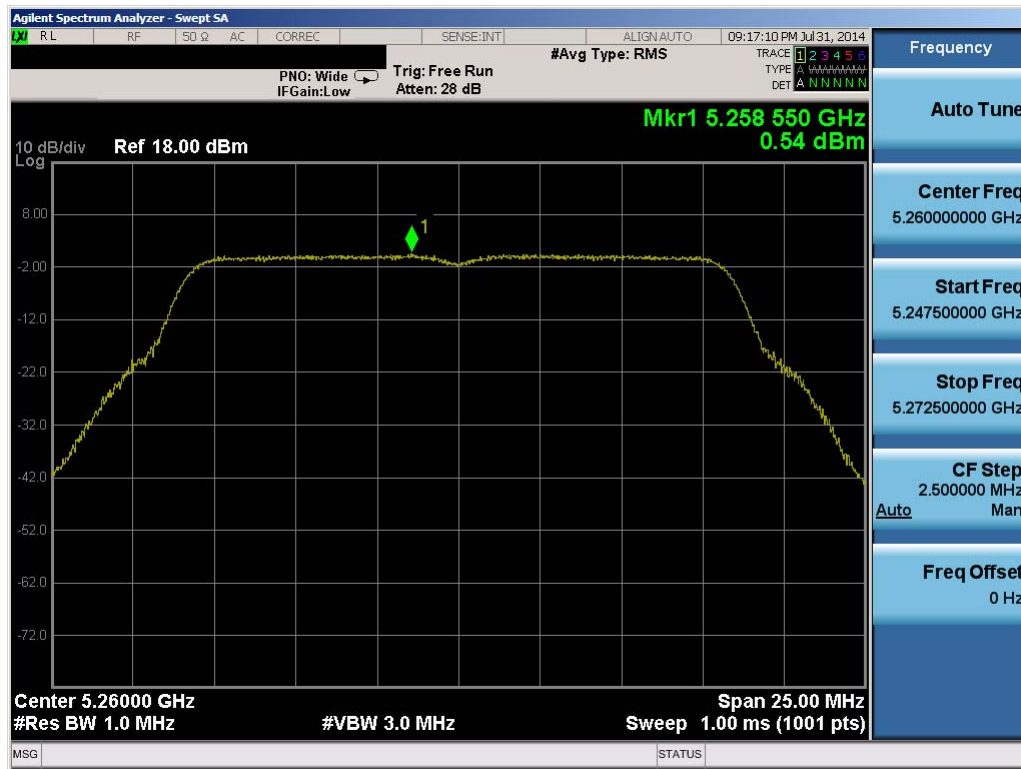
Plot 6-79. Peak Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 56)



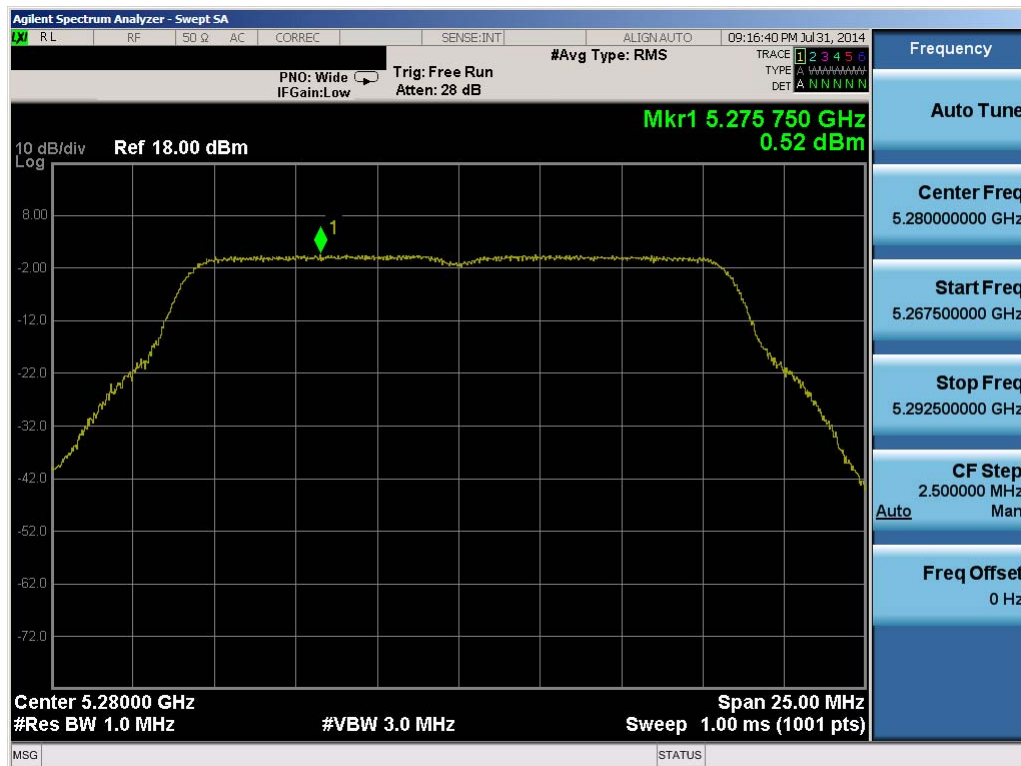
Plot 6-80. Peak Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 64)

|                                      |                                               |                                                                        |                |                                 |
|--------------------------------------|-----------------------------------------------|------------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN910R4                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1408051620.A3L | Test Dates:<br>07/29-09/1/2014                | EUT Type:<br>Portable Handset                                          |                | Page 63 of 182                  |



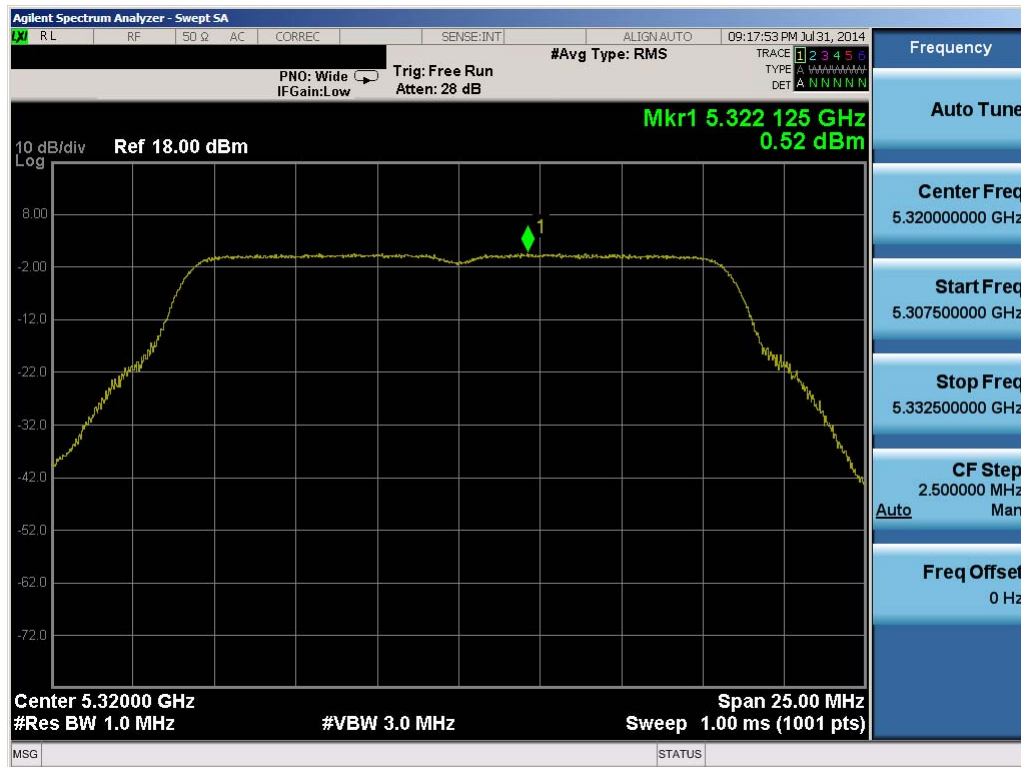


Plot 6-81. Peak Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 52)

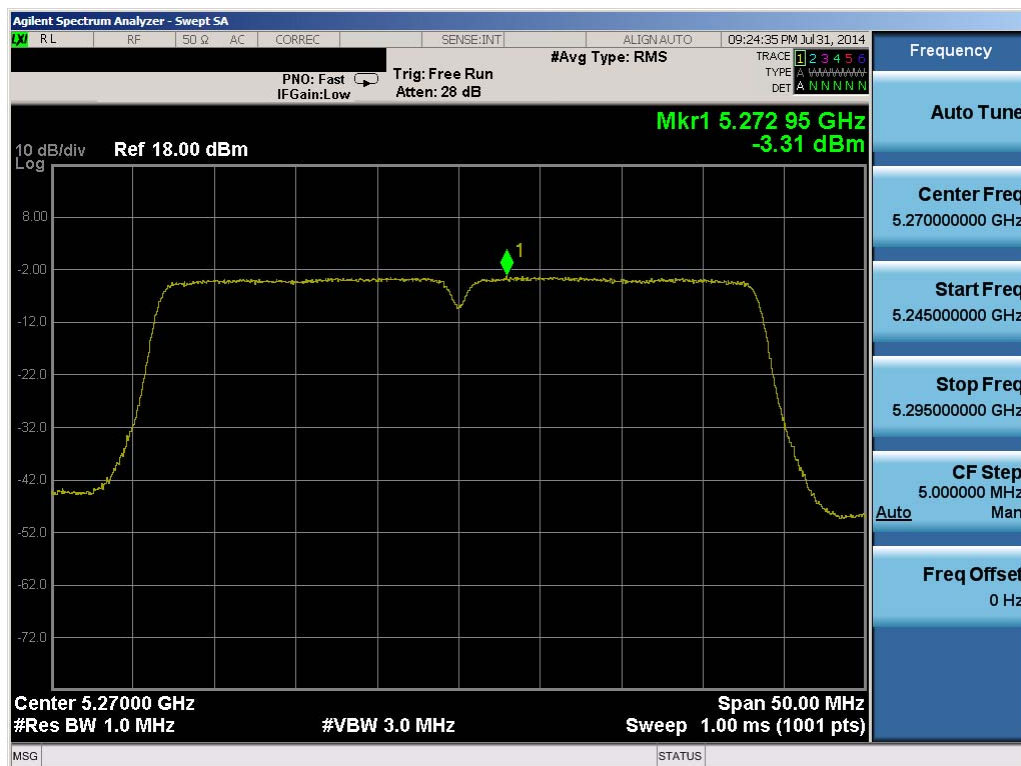


Plot 6-82. Peak Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 56)

|                                      |                                               |                                                                        |                |                                 |
|--------------------------------------|-----------------------------------------------|------------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN910R4                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1408051620.A3L | Test Dates:<br>07/29-09/1/2014                | EUT Type:<br>Portable Handset                                          |                | Page 64 of 182                  |

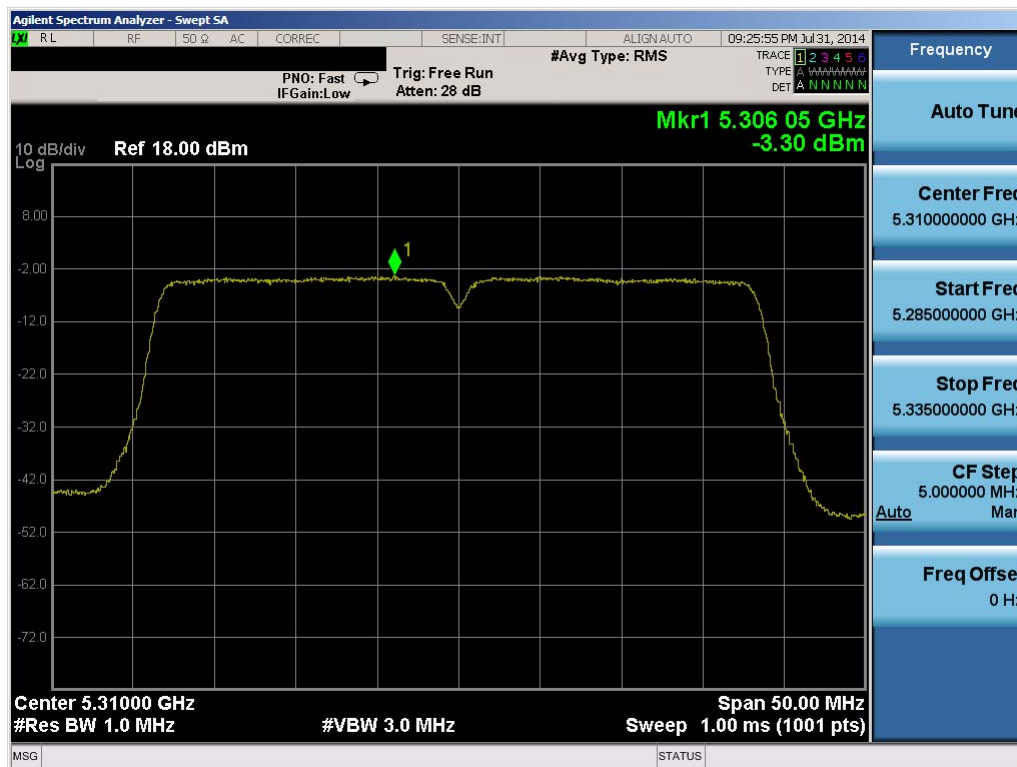


Plot 6-83. Peak Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 64)

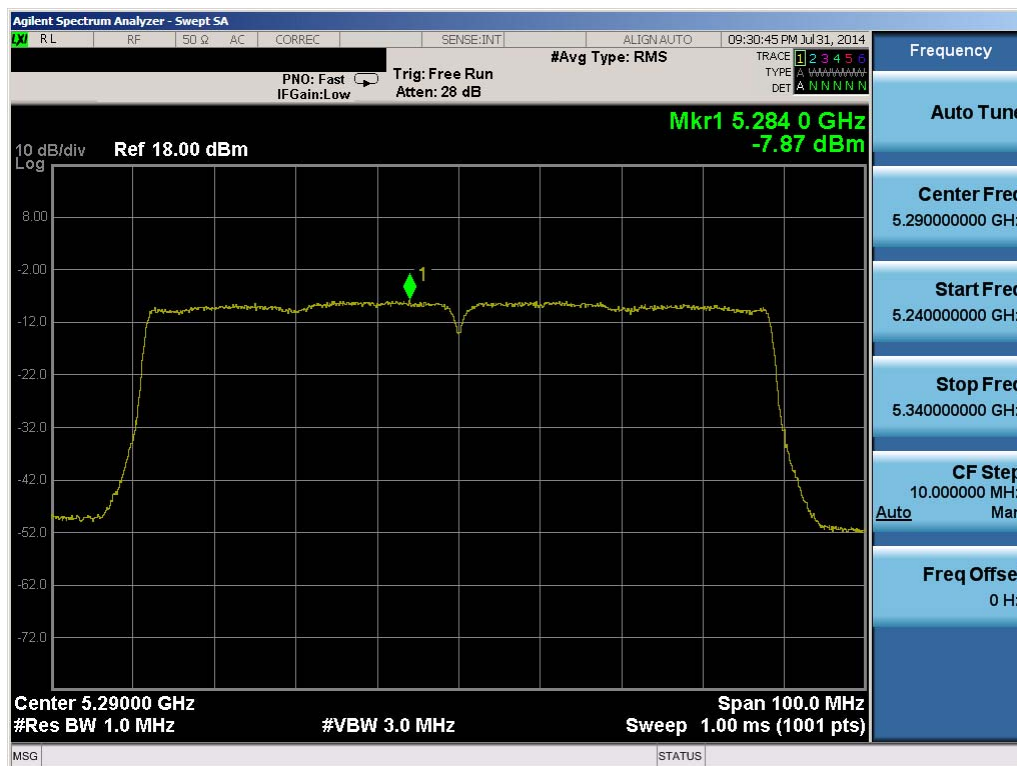


Plot 6-84. Peak Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2A) – Ch. 54)

|                                      |                                               |                                                                        |                |                                 |
|--------------------------------------|-----------------------------------------------|------------------------------------------------------------------------|----------------|---------------------------------|
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| Test Report S/N:<br>0Y1408051620.A3L | Test Dates:<br>07/29-09/1/2014                | EUT Type:<br>Portable Handset                                          |                | Page 65 of 182                  |

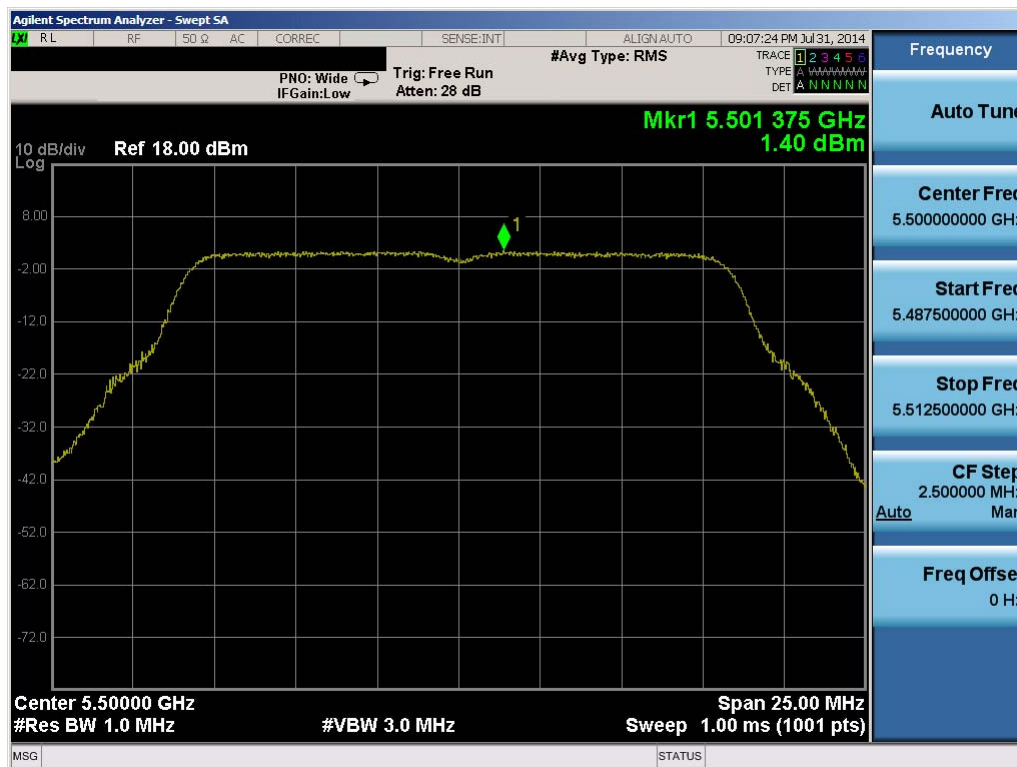


Plot 6-85. Peak Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2A) – Ch. 62)



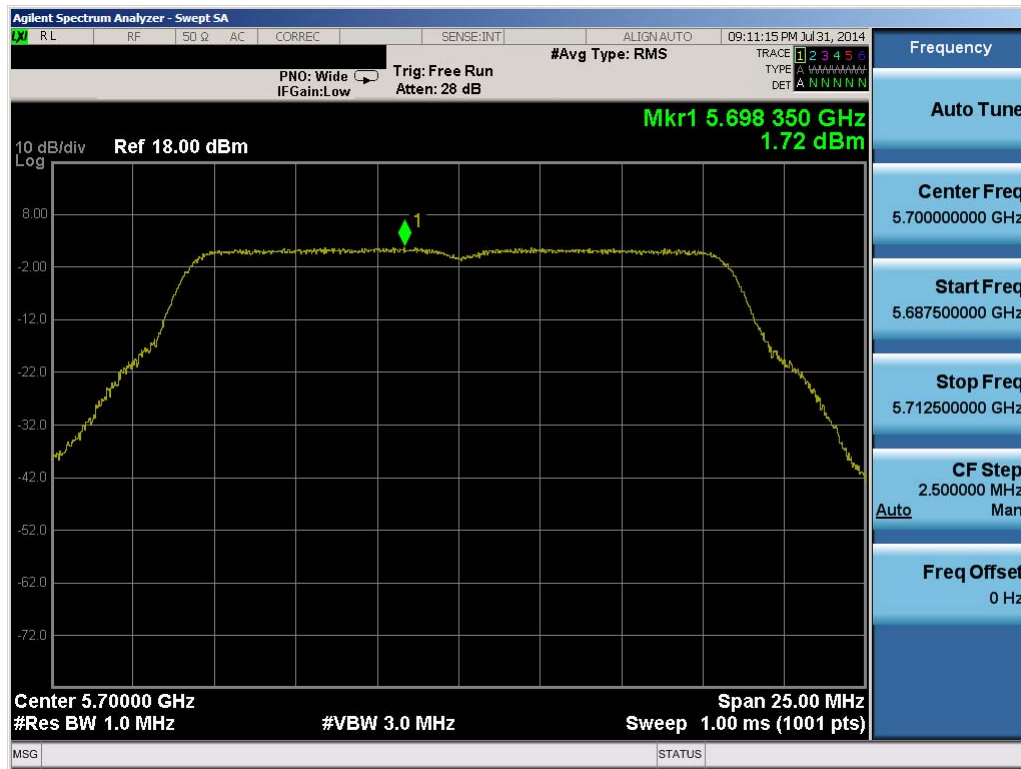
Plot 6-86. Peak Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2A) – Ch. 58)

|                                      |                                               |                                                                        |                |                                 |
|--------------------------------------|-----------------------------------------------|------------------------------------------------------------------------|----------------|---------------------------------|
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| Test Report S/N:<br>0Y1408051620.A3L | Test Dates:<br>07/29-09/1/2014                | EUT Type:<br>Portable Handset                                          |                | Page 66 of 182                  |

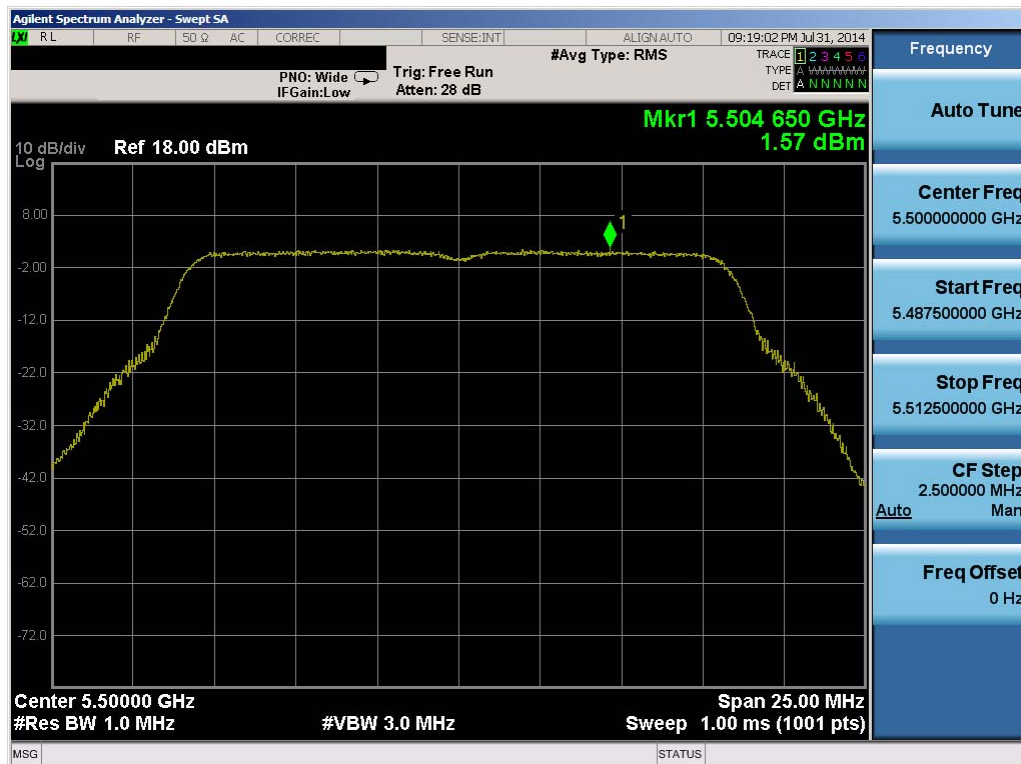


**Plot 6-87. Peak Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 100)**

Plot 6-88. Peak Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 116)



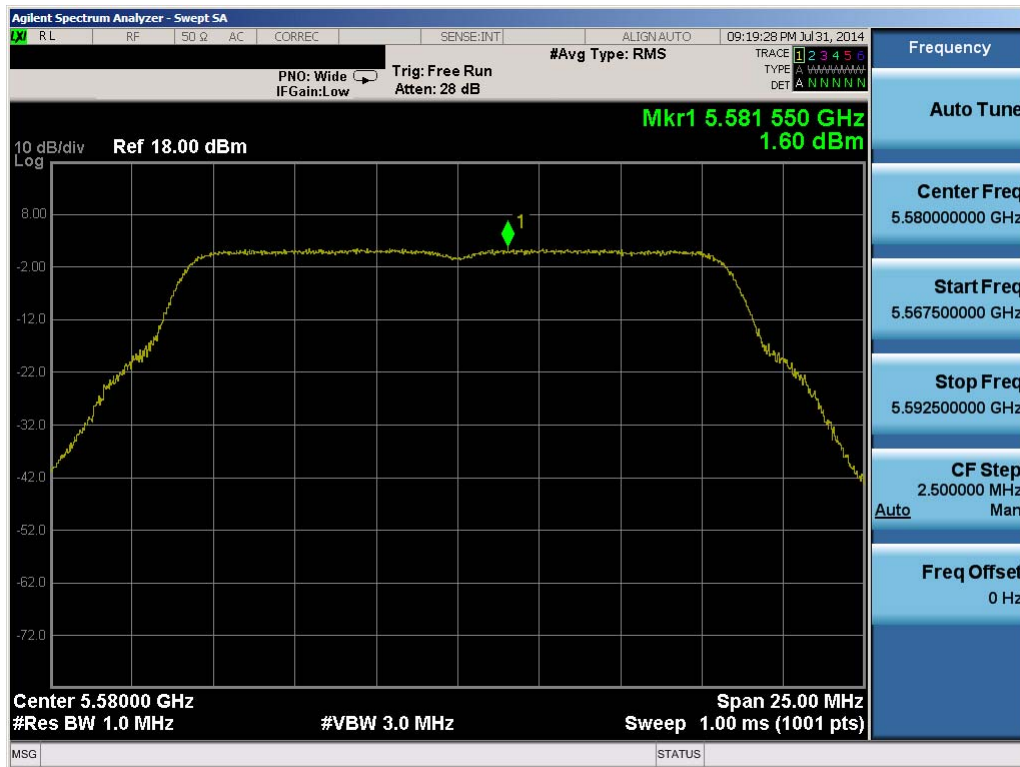
Plot 6-89. Peak Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 140)



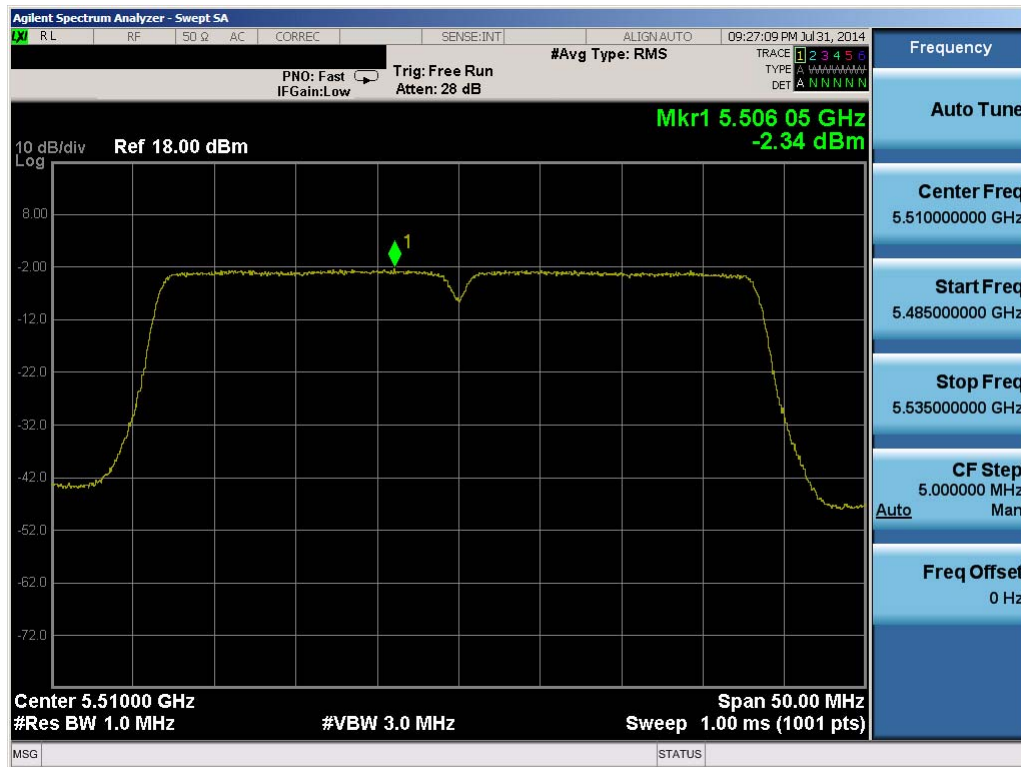
Plot 6-90. Peak Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 100)

|                                      |                                               |                                                                        |                |                                 |
|--------------------------------------|-----------------------------------------------|------------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN910R4                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1408051620.A3L | Test Dates:<br>07/29-09/1/2014                | EUT Type:<br>Portable Handset                                          |                | Page 68 of 182                  |

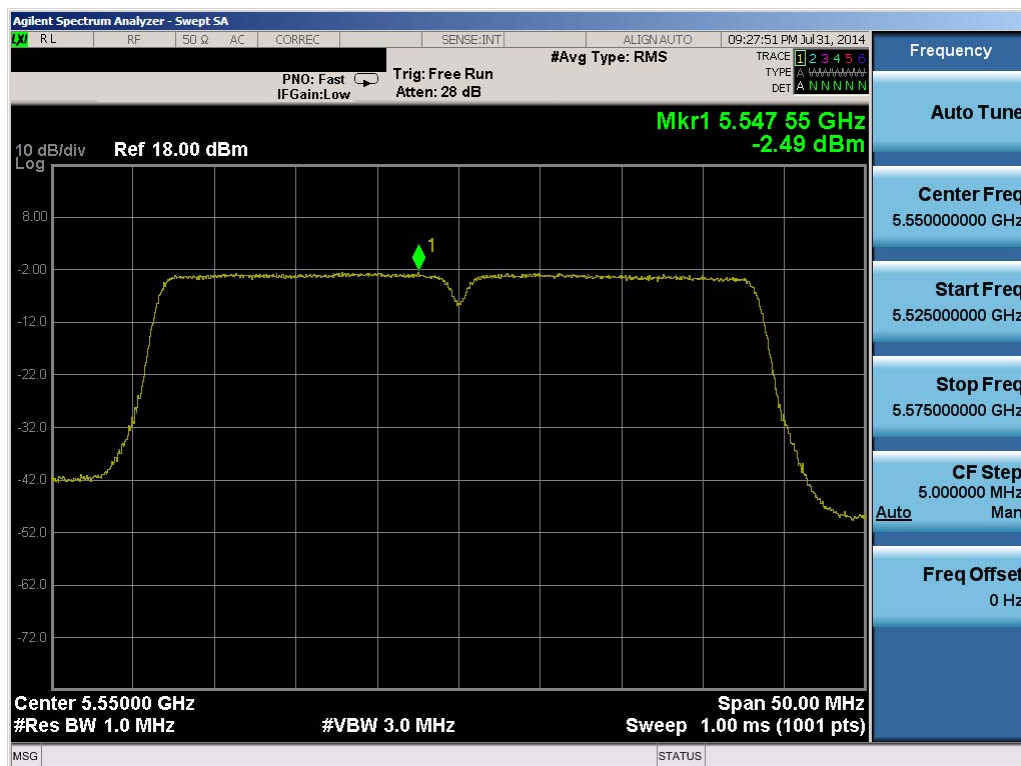








Plot 6-93. Peak Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 102)



Plot 6-94. Peak Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 110)

|                                      |                                               |                                                                        |                |                                 |
|--------------------------------------|-----------------------------------------------|------------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN910R4                  | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0Y1408051620.A3L | Test Dates:<br>07/29-09/1/2014                | EUT Type:<br>Portable Handset                                          |                | Page 70 of 182                  |

